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Foreword

The instruction manual (hereinafter Manual) provides the operator with useful information for working correctly and safely, facilitating him in using the machine (hereinafter “machine”, “dishwasher” or “equipment”).

The following must not be considered a long and exacting list of warnings, but rather a set of instructions suitable for improving machine performance in every respect and, above all, preventing injury to persons and animals and damage to property due to improper operating procedures.

All persons involved in machine transport, installation, starting, use and maintenance, repair and dismantling must consult and carefully read this manual before performing the various operations, for the purpose of avoiding wrong and improper actions that could negatively affect the machine’s integrity or endanger persons.

The manual must always be available to operators and carefully kept in the place where the machine is used so that it is immediately at hand for consultation in case of doubts or whenever required.

If, after reading this manual, there are still doubts regarding machine use, do not hesitate to contact the Manufacturer, or the authorized assistance centre, to receive prompt and precise assistance for better operation and maximum efficiency of the machine.

During all phases of machine use, always respect the current regulations on safety, work hygiene and environmental protection. It is the user’s responsibility to make sure the machine is started and operated only in optimal safety conditions for persons, animals and property.

A GENERAL INFORMATION

A1 Introduction

This chapter describes the symbols used (that mark and identify the type of warning) and gives the definitions of terms used in the manual, responsibilities and copyright.

A2 Definitions

Listed below are the definitions of the main terms used in the Manual. Carefully read them before using the Manual.

Operator

an operator who carries out machine installation, adjustment, use, maintenance, cleaning, repair and transport.

Manufacturer

Electrolux Professional S.p.A. or any other assistance centre authorized by Electrolux Professional S.p.A..

Operator qualified for normal machine use

an operator who has been informed, instructed and trained regarding the tasks and hazards involved in normal machine use.

Specialized technician or Technical assistance

an operator instructed/trained by the Manufacturer and who, based on his professional and specific training, experience and knowledge of the accident-prevention regulations, is able to appraise the operations to be carried out on the machine and recognize and prevent possible risks. His professionalism covers the mechanical, electrotechnical and electronics fields.

Danger

source of possible injury or harm to health.

Hazardous situation

any situation where an operator is exposed to one or more hazards.

Risk

a combination of probabilities and risks of injury or harm to health in a hazardous situation.

Guards

safety measures consisting of the use of specific technical means (guards and safety devices) for protecting operators against dangers.

Guard

an element of a machine used specifically to provide protection by means of a physical barrier.

Safety device

a device (other than a guard) that eliminates or reduces the risk; it can be used alone or in combination with a guard.

Customer

the person who purchased the machine and/or who manages and uses it (e.g. company, entrepreneur, firm).

Emergency stop device

a group of components intended for the emergency stop function; the device is activated with a single action and prevents or reduces damage to persons/machines/property/animals.

Electrocution

an accidental discharge of electric current on a human body.

A3 Typographical conventions

For best use of the manual, and therefore the machine, it is advisable to have good knowledge of the terms and typographical conventions used in the documentation.

The following symbols are used in the manual to mark and identify the various types of hazards:

WARNING!
DANGER FOR THE HEALTH AND SAFETY OF OPERATORS.

WARNING!
DANGER OF ELECTROCUTION - DANGEROUS VOLTAGE.

Machine guards and protection devices marked with this symbol must only be opened by qualified personnel, after disconnecting the power to the machine.

WARNING!
DANGER OF DAMAGE TO THE MACHINE.

IMPORTANT

Before servicing, disconnect the electrical service and place a red tag at the disconnect switch to indicate work is being done on that circuit.

Words and safety warnings further explaining the type of hazard are placed next to the symbols in the text. The warnings are intended to guarantee the safety of personnel and prevent damage to the machine or the product being worked.

The drawings and diagrams given in the manual are not in scale. They supplement the written information with an outline, but are not intended to be a detailed representation of the machine supplied.

The numerical values given in the machine installation diagrams refer to measurements expressed in mm (see par. E6.2 “Installation diagrams”).

Conventionally, the machines are depicted with the rack feed side on the right (RH); machines with left rack feed (LH) are depicted only if necessary, in which case the side will be expressly specified.

Due to its size, the machine is sometimes shown schematically divided into its functional modules in order to provide a complete view.

A4 Machine and Manufacturer's identification data

A reproduction of the marking or dataplate on the machine is given below.



Figure 1 Reproduction of the marking/dataplate on the machine.

The dataplate gives the product identification and technical data; the meaning of the information given on it is listed below.

F. Mod..................	factory description of the product
Comm. Model........	trade description
PNC:......................	production code number
Ser. No..................	serial number
AC 208V -3ph.......	power supply voltage
60 Hz....................	power supply frequency
44.7 kW.................	max. power absorbed
2008.....................	year of construction

Electrolux Professional S.p.A.
Viale Treviso, 15
33170 Pordenone
(Italy) .... Manufacturer

The marking plate is located on the left or right side panel of the equipment, depending on the feed side.

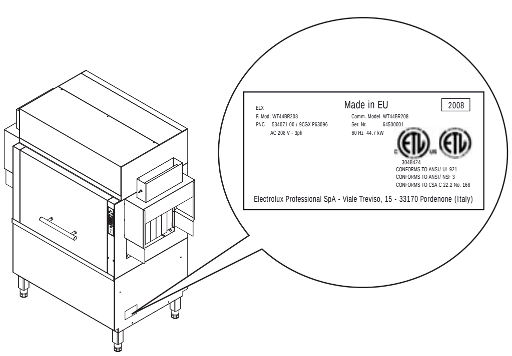


Figure 2 Position of marking (machine left)

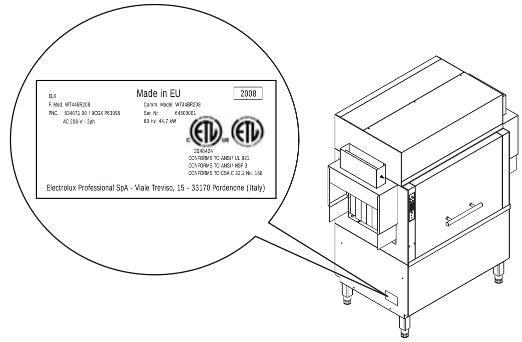


Figure 3 Position of marking (machine right)

WARNING!

Do not remove, tamper with or make the machine "CE" marking illegible.

IMPORTANT!

Refer to the data given on the machine "CE" marking for relations with the Manufacturer (e.g. when ordering spare parts, etc.).

IMPORTANT!

When disposing of the machine the "CE" marking must be destroyed.

A5 Equipment identification

This manual refers to various rack-type dishwasher models. For further details regarding your model, refer to Table 1 "Main technical characteristics, performance and consumption".

How to identify the technical data

To identify the technical data (Figure 4) read the factory description of the product (F.Mod.) on the dataplate, identify the main machine data and consult the Table 1 "Main technical characteristics, performance and consumption".

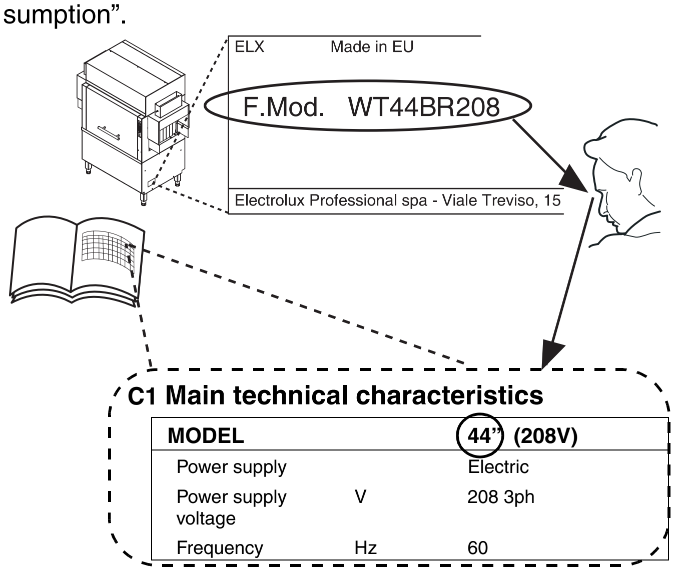


Figure 4 Technical data identification (Machine left)

How to interpret the factory description

The factory description on the dataplate has the following meaning:

(1)	(2)	(3)	(4)	(5)	(6)
WT	**44**	**B**	**R**	**208**	

	Description	Possible variables
(1)	Mark	WT ...
(2)	Machine dimension	44 = 44” 66 = 66”
(3)	Functional level	B = Atmospheric plumbing circuit with boiler, without CU C= Atmospheric plumbing circuit without boiler, without CU
(4)	Rack loading	L = from left to right R = from right to left
(5)	Power supply voltage	208 = 208V 240= 240V
(6)		

A6 Copyright

This manual is intended for consultation only by the operator and can be given to third parties only with the written permission of Electrolux Professional S.p.A..

A7 Liability

The instructions supplied with the machine take into account the Electrolux Professional S.p.A. experience and knowledge acquired to date. The instructions are updated to the month and year given in the box located at the bottom right of the cover. The edition corresponds to the manual revision number. Every new edition replaces and cancels the previous ones.

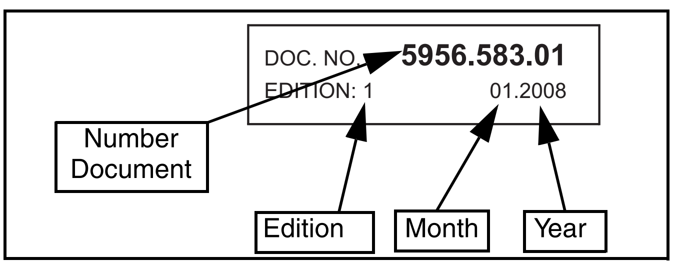


Figure 5 Example of document and edition identification data.

The Manufacturer declines any liability for damage and malfunctioning caused by:

- non-compliance with the instructions contained in this manual;
- repairs not carried out in a workmanlike fashion, and replacements using spare parts different from those specified in this manual (the fitting and use of non-original spare parts and accessories can negatively affect machine operation);
- operations by non-specialized technicians;
- unauthorized modifications or operations;
- inadequate maintenance;
- improper machine use;
- unexpected extraordinary events;
- use of the machine by uninformed and untrained personnel;
- non-application of the current provisions in the country of use, concerning safety, hygiene and health in the workplace.

The Manufacturer declines any liability for damage caused by arbitrary modifications and conversions carried out by the user or the Customer.

The employer or workplace manager is responsible for identifying and choosing adequate and suitable personal protection equipment to be worn by operators, in compliance with current regulations in the country of use.

Electrolux Professional S.p.A. declines any liability for possible inaccuracies contained in the manual, if due to printing or translation errors.

Any supplements to the instruction manual the Customer receives from the Manufacturer must be kept together with the manual, of which they will form an integral part.

A8 Keeping the manual

The manual must be carefully kept for the entire life of the machine until decommissioning.

The manual must stay with the machine in case of transfer, sale, hire, granting of use or leasing.

A9 Users of the manual

This manual is intended for:

- the carrier and handling personnel;
- installation and start-up personnel;
- the employer of machine users and the workplace manager;
- operators in charge of normal machine use;
- specialized technicians - technical assistance (see wiring diagram and service manual).

B GENERAL DESCRIPTION OF MACHINE

B1 General description

The rack-type dishwasher is suitable for washing dishes, glasses, cups, cutlery, trays, containers and receptacles in plastic and/or steel used for preparing, cooking and serving; as well as various cooking utensils in ceramic and/or metal.

The machine is designed for the above-mentioned applications. Under no circumstances may the machine be used for other applications or ways not provided for in this manual.

This equipment has been produced to meet the needs for a better work environment and economical efficiency. These dishwashers are used in restaurants, cafeterias, cooking centres and large institutions.

The special dish racks, that can be equipped with various inserts, offer practical and easy use for obtaining excellent washing results. Rack handling inside the machine occurs automatically. The electronic system enables complete supervision of the washing process. The control panel also has a display that shows the operating parameters and signals any anomalies.

In this type of machine the rack is taken from the loading point to the unloading point, through the various washing functions. Systems for scraping and wetting the dishes (e.g. manual prewash spray) and areas for sorting and arranging them in the racks must be arranged ahead of the dishwasher.

The possible configurations of compact rack-type dishwashers, classified according to the maximum number of racks washed in one hour, are as follows:

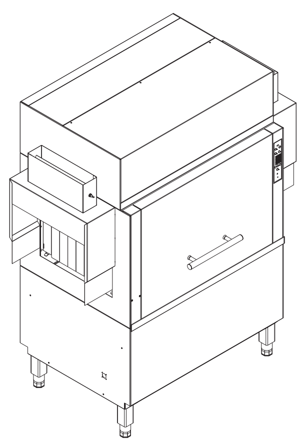
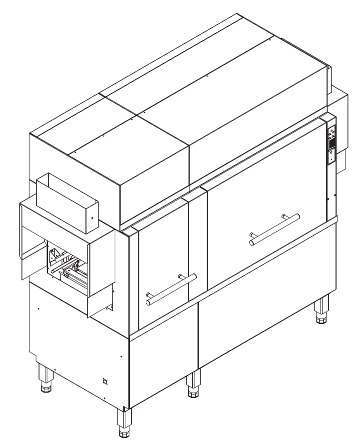
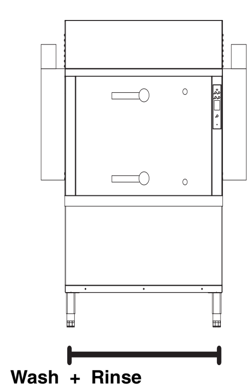
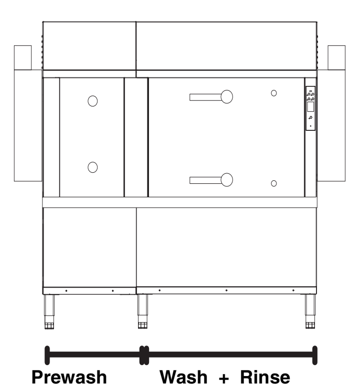
44”	66”
	

Figure 6 View of different configurations of compact rack-type dishwashers

B2 Description of machine modules

Rack-type dishwasher - 44”	Rack-type dishwasher - 66”
	

The machine consists of the following zones:

- wash zone
- rinse zone

and can be integrated with the following units:

- prewash zone

B2.1 Wash zone

Water with the addition of detergent is sprayed on the dishes in the wash zone through an upper and lower wash arm system. The purpose of this function is to remove all residuals of food from the dishes. Washing is carried out with water circulating at a temperature of 71-78 °C / 160-172 °F.

B2.2 Rinse zone

Water with the addition of rinse aid is sprayed on the dishes in the rinse zone through a system of arms equipped with special nozzles. The purpose of this function is to remove all residuals of detergent deriving from the previous wash phase.

Rinsing is carried out with clean water coming from the water system, heated to a max. temperature of 82-90 °C / 180-194°F.

The high temperature ensures satisfactory drying and careful neutralization of bacteria. The addition of rinse aid allows the water to easily run off the dishes, thus favouring the drying process.

B2.3 Prewash zone

Water is sprayed on the dishes in the prewash zone through an upper and lower prewash arm system. The purpose of this function is to remove the larger food residuals, preparing the dishes for the subsequent wash phase.

Prewash is carried out with water circulating at a max. temperature of 40°C / 104°F in order to prevent food residuals (in particular proteins) from sticking to the dishes.

B2.4 View of module composition

In rack-type dishwashers the various zones just described are thus applied to the various previously defined configurations.

C TECHNICAL DATA

C1 Main technical characteristics

	MODEL		44" (208V)	44" (240V)	66" (208V)	66" (240V)
MAIN TECHNICAL DATA	Power supply		Electric	Electric	Electric	Electric
	Power supply voltage	V	208 3PH	240 3PH	208 3PH	240 3PH
	Frequency	Hz	60	60	60	60
	Max. power. absorbed with boiler (rise 56 °C / 100 °F)	kW	44.7	44.7	45.0	45.0
	Max. power. absorbed with boiler (rise 39 °C / 70 °F)	kW	38.7	38.7	39.0	39.0
	Max. power. absorbed with boiler (rise 22 °C / 40 °F)	kW	32.7	32.7	33.0	33.0
	Max. power. absorbed without boiler	kW	20.7	20.7	21.0	21.0
	Max. current. absorbed with boiler (rise 56 °C / 100 °F)	A	128.3	112.7	130.6	115.2
	Max. current. absorbed with boiler (rise 39 °C / 70 °F)	A	111.6	98.3	113.9	100.8
	Max. current. absorbed with boiler (rise 22 °C / 40 °F)	A	95.0	83.9	97.3	86.4
	Max. current. absorbed without boiler	A	61.7	55.0	64.0	57.5
	Supply water pressure	kPa/bar/PSI	150..700 / 1.5..7 / 22..102	150..700 / 1.5..7 / 22..102	150..700 / 1.5..7 / 22..102	150..700 / 1.5..7 / 22..102
	Hot water supply temp. with boiler ** (rise 56 °C / 100 °F)	°C/°F	27 / 80	27 / 80	27 / 80	27 / 80
	Hot water supply temp. with boiler (rise 39 °C / 70 °F)	°C/°F	44 / 110	44 / 110	44 / 110	44 / 110
	Hot water supply temp. with boiler (rise 22 °C / 40 °F)	°C/°F	60 / 140	60 / 140	60 / 140	60 / 140
	Hot water supply temp. without boiler	°C/°F	90 / 194	90 / 194	90 / 194	90 / 194
	Concentration of chlorides in water	ppm	< 20	< 20	< 20	< 20
	Electric conductivity of water	µS/cm	< 400	< 400	< 400	< 400
	Supply water hardness	°fH /°dH/ ppm $CaCO_3$	14 / 8 / 140	14 / 8 / 140	14 / 8 / 140	14 / 8 / 140
	Rack loading/feed	RH machine LH machine	From right to left From left to right	From right to left From left to right	From right to left From left to right	From right to left From left to right
	No. speeds		2	2	2	2
	Capacity speed 1	racks/h	100	100	100	100
	Capacity speed 2	racks/h	200	200	200	200
	Water consumption	l/h - gal/h	300 - 79.3	300 - 79.3	315 - 83.2	315 - 83.2
	Equivalent sound pressure level Leq **(1)**	dB(A)	< 70	< 70	< 70	< 70
	Minimum Supply - Circuit Ampacity Supply Terminal box (Boiler) (2)	A	67	58	67	58
	Minimum Supply - Circuit Ampacity Supply Terminal box (Machine) (2)	A	66	60	66	60
	Maximum overcurrent protective device Supply Terminal box (Machine) (2)	A	80	70	80	70
	Net weight	lb/kg	1012 / 459	1012 / 459	1268 / 575	1268 / 575
	Shipping weight	lb/kg	-	-	-	-
	Shipping width	lb/kg	-	-	-	-
	Shipping height	lb/kg	-	-	-	-
	Shipping depth	lb/kg	-	-	-	-
PREWASH	tank capacity	l/gal	-	-	45/ 11.9	45/ 11.9
	temperature	°C/°F	-	-	max 40 / 104	max 40 / 104
	pump delivery	l/min - gal/min	-	-	180 - 57.5	180 - 57.5
	pump power	kW	-	-	0.37	0.37
	current absorbed by pump	A	-	-	2.5	2.5
	tank heating element	kW	-	-	-	-
WASH	tank capacity	l/gal	100/ 26.4	100/ 26.4	100/ 26.4	100/ 26.4
	temperature	°C/°F	71..78/160..172	71..78/160..172	71..78/160..172	71..78/160..172
	pump delivery	l/min - gal/min	450 - 118.9	450 - 118.9	450 - 118.9	450 - 118.9
	pump power	kW	1.9	1.9	1.9	1.9
	current absorbed by pumps	A	6.2	6.2	6.2	6.2
	tank heating element	kW	9.0 + 9.0	9.0 + 9.0	9.0 + 9.0	9.0 + 9.0

MODEL			44" (208V)	44" (240V)	66" (208V)	66" (240V)
RINSE	temperature	°C/°F	82..90/180..194	82..90/180..194	82..90/180..194	82..90/180..194
	delivery	l/min - gal/min	5 - 1.32	5 - 1.32	5 - 1.32	5 - 1.32
	pump power	kW	0.32	0.32	0.32	0.32
	current absorbed by pump	A	1.5	1.5	1.5	1.5
	boiler heating elements (with boiler rise 100)	kW	6.0 + 6.0 + 6.0 + 6.0	6.0 + 6.0 + 6.0 + 6.0	6.0 + 6.0 + 6.0 + 6.0	6.0 + 6.0 + 6.0 + 6.0
	boiler heating elements (with boiler rise 70)	kW	6.0 + 6.0 + 6.0	6.0 + 6.0 + 6.0	6.0 + 6.0 + 6.0	6.0 + 6.0 + 6.0
	boiler heating elements (with boiler rise 40)	kW	6.0 + 6.0	6.0 + 6.0	6.0 + 6.0	6.0 + 6.0
	boiler capacity	l/ gal	12+12 / 3.17+ 3.17	12+12 / 3.17+ 3.17	12+12 / 3.17+ 3.17	12+12 / 3.17+ 3.17

Table 1 Main technical characteristics, performance and consumption

** If the water supply temperature is lower than the value indicated, the machine could not comply with NSF/ ANSI 3 2003.

(1) The value could increase depending on the work station where measured.

(2) See Figure 10 (Electrical connections diagram).

C2 Characteristics of power supply

The AC power supply to the machine must meet the following conditions:

- max. voltage variation ± 6% continuous ± 10% for a short period.
- max. frequency variation ± 1% continuous ± 2% for a short period.

Harmonic distorsion, unbalanced three-phase supply voltage, voltage pulses, interruption, dips and the other electric characteristics must respect the provisions of point 4.3.2 of Standard EN 60204-1 (IEC 60204-1).

IMPORTANT!

The machine's power supply must be protected against overcurrents (short circuits and overloads) by fuses or suitable thermal magnetic circuit breakers.

IMPORTANT!

The dishwasher shall be installed in accordance with local codes, or in the absence of local codes, installed in accordance with the applicable requirements in the National Electrical Code, NFPA 70, Canadian Electrical Code (CEC), Part 1, CSA C22.1, and Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96.

IMPORTANT!

Customers are requested to follow these instructions, otherwise the Manufacturer does not guarantee the machine for continuous operation and/or against faults.

D TRANSPORT, HANDLING AND STORAGE

D1 Introduction

Transport (i.e. transfer of the machine from one place to another) and handling (i.e. transfer inside workplaces) must occur with the use of special equipment of adequate capacity.

The machine can be transported by road, rail, sea or air. Except for transport by road, the machine is placed inside a container in which there are also other machines. The machines can be positioned inside the container by the Manufacturer or by the carrier.

IMPORTANT!

Due to its size, during transport one machine cannot be stacked on top of another, therefore possible risks of load overturning are excluded.

The Manufacturer declines any liability for possible damage to the packing and the machine.

On receiving the machine, check that the packing and components are not damaged. In case of damage, **immediately** notify the carrier and the Manufacturer.

If the equipment received has visible or hidden damage, a claim can be made with the carrier.

Visible losses or damage must be reported in the transport document at the time of delivery. The transport document must be signed by the carrier's representative (e.g. the driver). If the transport document is not signed, the carrier can reject the claim.

The request for inspection must be submitted to the carrier within 15 days in case of non-visible damage or losses detected only after unpacking the equipment. The carrier shall arrange an inspection. Keep all the packing material and contents. Under no circumstances may a damaged appliance be returned to the manufacturer without prior notice and written permission.

The machine must only be transported, handled and stored by qualified personnel, who must have:

- specific technical training and experience;
- knowledge of the safety regulations and applicable laws in the relevant sectors;
- knowledge of the general safety provisions;
- the ability to recognize and avoid any possible hazard.

The Manufacturer declines any liability whenever transport is undertaken by carriers chosen by the Customer.

IMPORTANT!

Machine transport, handling and storage personnel must receive adequate instruction and training on the use of lifting systems and the use of personal protection equipment suitable for the type of operation performed (e.g. overalls, safety shoes, gloves and helmet).

D1.1 Transport: Instructions for the carrier

During the journey the tightness of the fixing systems must be checked several times, and in particular:

- just a few km after the start of the journey;
- in case of sudden temperature changes;
- in case of intense cold;
- in case of particularly rough roads.

When removing the anchoring systems, make sure the stability of the machine parts does not depend on the anchoring and, therefore, that this operation does not cause the load to fall off the vehicle.

WARNING!

Do not stand under suspended loads during the loading/unloading phases. Unauthorized personnel must not access the work zone.

IMPORTANT!

The machine's weight alone is not sufficient to keep it steady.

The transported load can shift:

- **when braking;**
- **when accelerating;**
- **in corners;**
- **on particularly rough roads.**

If slings in synthetic fibre are used to anchor the machines, protect them from friction, abrasion and damage caused by possible sharp edges of the load. If there are sharp edges that can damage the sling, use suitable corner protectors or sliding tubes.

CAUTION!

When removing the anchoring systems, make sure the stability of the machine parts does not depend on the anchoring and, therefore, that this operation does not cause the load to fall off the vehicle.

Before unloading the machine components make sure all the anchoring systems are removed.

D2 Handling

Arrange a suitable area with flat floor for machine unloading and storage operations.

D2.1 Procedures for handling operations

For correct and safe lifting operations:

- use the type of equipment most suitable for characteristics and capacity (e.g. lift trucks or electric pallet truck);
- cover sharp edges;
- check the forks and lifting procedures according to the instructions given on the packing.

Before lifting:

- send all operators to a safe position and prevent persons from accessing the handling zone;
- make sure the load is stable;
- make sure no material can fall during lifting, and manoeuvre vertically in order to avoid impacts;
- handle the machine, keeping it at minimum height from the ground.

CAUTION!
For machine lifting, do not use movable or weak parts such as casings, electrical raceways, pneumatic parts, etc., as anchoring points.

D2.2 Translation

The operator must:

- have a general view of the path to be followed;
- stop the manoeuvre in case of hazardous situations.

D2.3 Placing the load

Before placing the load make sure the path is free and that the floor is flat and can take the load.

D3 Storage

The machine and/or its parts must be stored and protected against damp, in a non-aggressive place free of vibrations and with room temperature of between -10°C / 14°F and 50°C / 122°F.

The place where the machine is stored must have a flat support surface in order to avoid any twisting of the machine or damage to the support feet.

IMPORTANT!
During the storage phase the machine can be stacked on another as shown in the pictogram on the packing.

IMPORTANT!
Machine positioning, installation and disassembly must be carried out by a specialized technician.

IMPORTANT!
Do not make modifications to the parts supplied with the machine. Any missing or faulty parts must be replaced with original parts.

E1 Customer responsibilities

The Customer must provide for the following:

- installation of an adequate electrical power supply ahead of the machine, according to the equipment's technical specifications (Table 1 and C2 "Characteristics of power supply");
- the equipotential ground connection of the workplace electrical system to the metal structure of the machine by means of a copper cable of adequate section (see position "Q" in par. E6.2 "Installation diagrams");
- Adducting for the electrical connection between the workplace electric panel and the equipment;
- the water supply and drain connections and other connections as indicated in Table 1 and par. E6 "Plumbing connections";
- arrangement of general workplace lighting to guarantee at least 500 lx according to point 5.2.2 of EN 12464-1 or according to a value established by the current regulations in the country of use.

E2 Characteristics of the site installation

The machine is designed for installation in professional and not domestic-type kitchens. Water collection traps/ metal grates must be arranged in the floor at the machine discharges (see par. E6.2 "Installation diagrams"), possibly replaceable with a single water trap sized for a flow rate of at least 0.79 gal/s (3 l/s).

E3 Machine space limits

A suitable space must be left around the machine (for operations, maintenance, etc.).

The passages enabling personnel to operate on the machine must be at least 27.55" (70cm) wide, except at the rear of the machine (see par. E6.2 "Installation diagrams").

The size must be increased in case of use and/or transfer of other equipment and/or means or if exit routes are necessary inside the workplace.

E4 Positioning

Unless otherwise agreed, the machine is supplied in a single unit.

The machine must be taken to the place of installation and the packing base removed only when being installed.

Arranging the machine:

- Position the machine in the required place.
- Adjust the equipment by turning the special adjustable feet and making sure it is perfectly level, both lengthwise and crosswise.

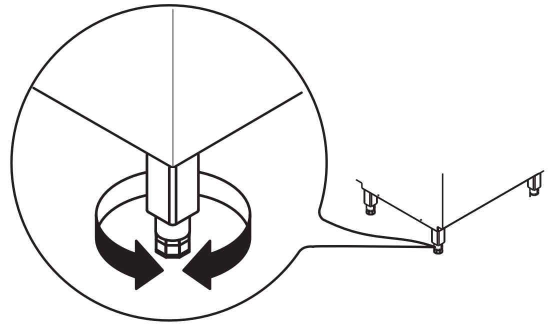


Figure 7 Feet adjustment

- Wear protective gloves and unpack the machine.
- Carefully remove the protective film from the outer panels without tearing it, to avoid leaving traces of glue.

E5 Disposal of packing

All materials used for packing are environmentally compatible. They can be safely kept, and recycled or burnt in a special waste incineration plant. Plastic parts subject to possible recycling are marked as follows:

PE	**polyethylene:**	**outer wrapping, instruction booklet bag.**
PP	**polypropylene:**	**roof packing panels, straps.**
PS	**polystyrene foam:**	**corner protectors.**

Parts in wood and cardboard can be disposed of respecting the current regulations in the country of use.

E6 Plumbing connections

Install the machine water filling and drain pipes according to the plumbing circuit and installation diagrams given below.

IMPORTANT!

Machine installation operations must only be carried out by specialized Technicians provided with all the appropriate personal protection equipment (safety shoes, gloves, glasses, overalls, etc.), tools, utensils and ancillary means.

IMPORTANT

Before servicing, disconnect the electrical service and place a red tag at the disconnect switch to indicate work is being done on that circuit.

E6.1 Plumbing circuits

Cold water connection ISO 228/1 DN 20 (G3/4”).
4-15°C 39°F-59°F 150 - 700 kPa (21.7 - 101.5 PSI / 1.5 - 7 bar) at 0.07 gal/sec (0.3 l/sec).
Hot water connection ISO 228/1 DN 20 (G3/4").
150 - 700 kPa (21.7 - 101.5 PSI / 1.5 - 7 bar) at 0.07 gal/sec (0.3 l/sec).
The supply water temperature is related to the machine setup.

MACHINES WITH BOILER:

MACHINES WITH BOILER	**RISE 40°F/ 22°C**	Inlet water temperature **min. 140°F/ 60°C**	for RINSE and WASH CIRCUIT
	RISE 70°F/ 39°C	Inlet water temperature **min. 110°F/ 43.3°C**	for RINSE and WASH CIRCUIT
	RISE 100°F/ 56°C	Inlet water temperature **min. 80°F/ 26.6°C**	for RINSE and WASH CIRCUIT

MACHINES WITHOUT BOILER:

MACHINES WITHOUT BOILER	Inlet water temperature **min. 194°F/ 90°C**	for RINSE CIRCUIT
	Inlet water temperature **80-140°F/ 27-60°C**	for WASH TANK
	Inlet water temperature **39-59°F/ 4-15°C**	for PREWASH TANK

If the water pressure is less than 150 kPa (21.7 PSI - 1.5 bar) a booster pump must be installed ahead of the machine.

This pump can be requested as an optional, and if ordered together with the machine it is supplied already installed on the water connection fitting. If the pressure at one of the unions exceeds 700 kPa (101.5 PSI - 7bar), a pressure reducing valve must be installed on the inlet piping. Connection pipes with anti-return protection and check valve and stop cock are available as optional accessories.

If the water hardness exceeds 14°fH/8°dH/10°cH, install a softener filter on the dishwasher inlet connection piping to ensure efficient machine operation.

IMPORTANT!

Connect the prewash zone to the cold water inlet and connect the rinse zone to the hot water inlet

Connect the appliance water supply to the mains, fitting a cut-off cock, a filter and a pressure gauge between the appliance and the mains.

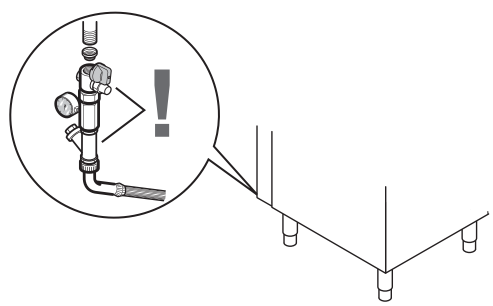
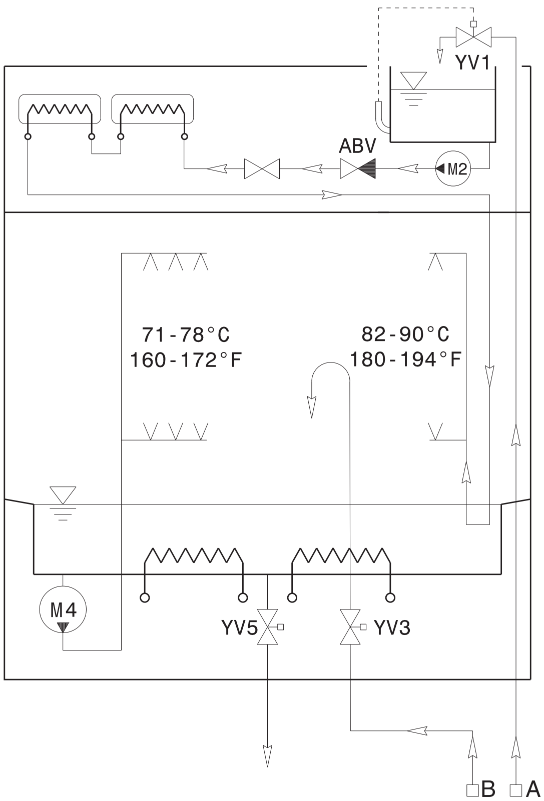
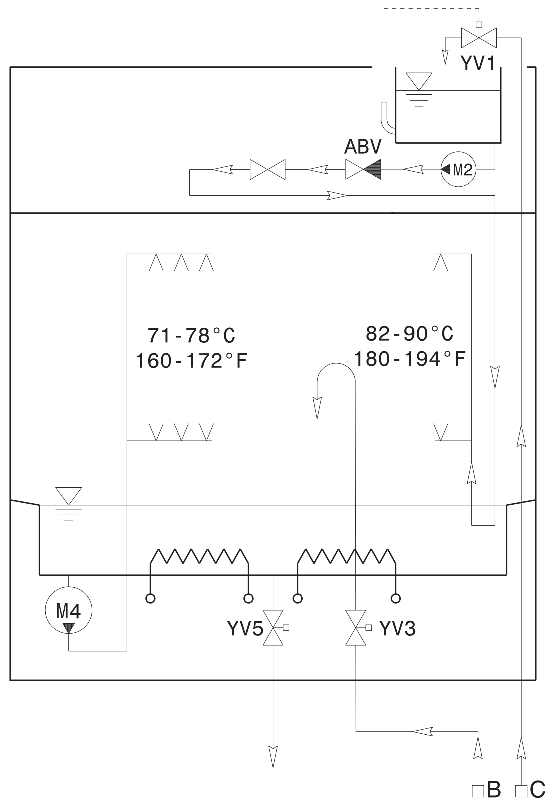
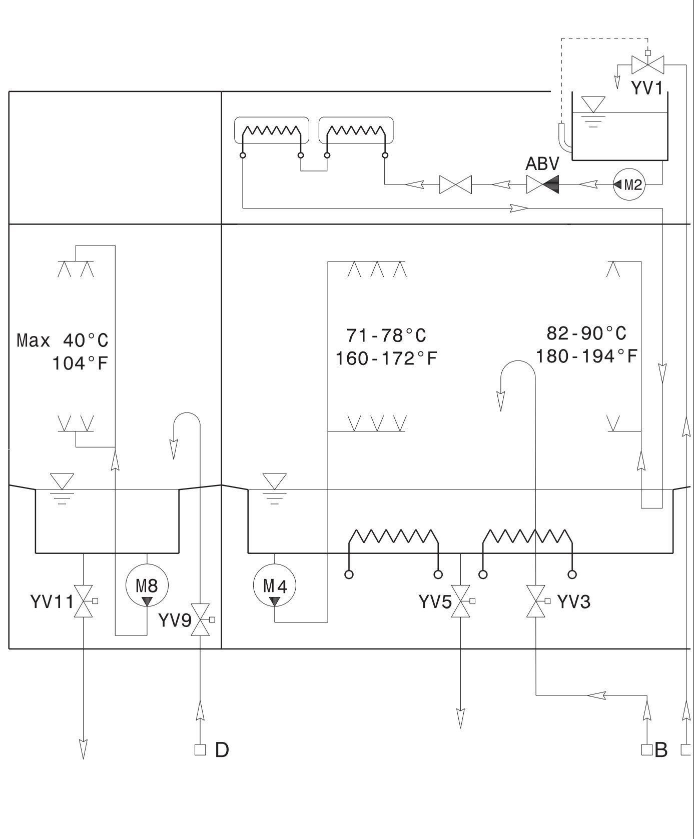


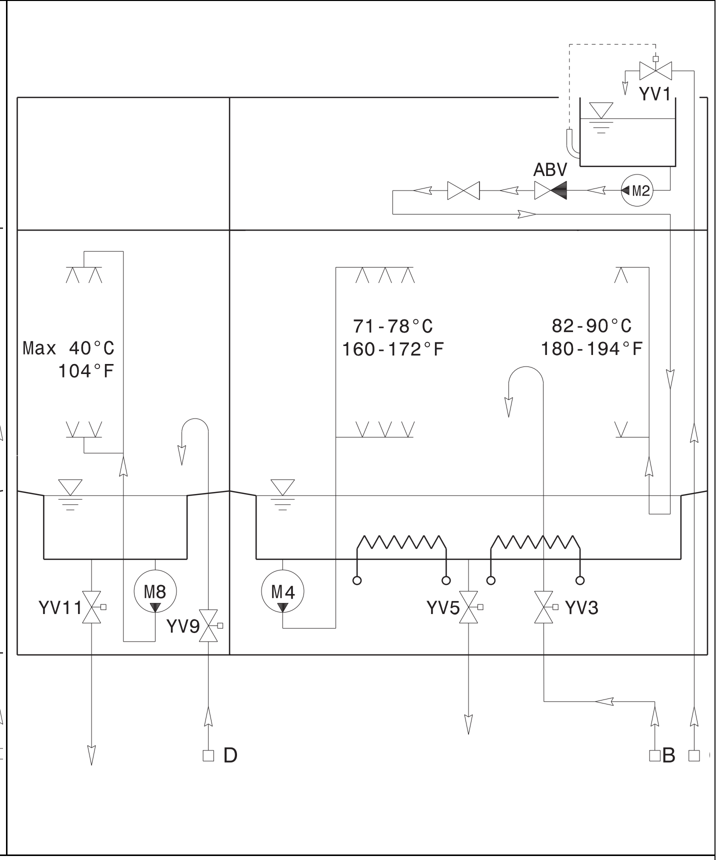
Figure 8 Water connection

Atmospheric plumbing circuit diagram, dishwashers - 44” (with boiler)	Atmospheric plumbing circuit diagram, dishwashers - 44” (without boiler)
	

LEGEND
A = Hot water inlet (related to boiler rise)
B = Hot water inlet 80-140F (26-60°C)
C = Hot water inlet min 194°F (90°C)
D = Cold water inlet
M2 = Rinse pump
M4 = Wash pump
M8 = Prewash pump
ABV = Air Break Valve
YV1 = Filling / Air-Gap filling solenoid valve (5.28 gal/min - 20 l/min)
YV5 = Wash tank drain solenoid valve
YV6 = Wash tank water filling solenoid valve (5.28 gal/min - 20 l/min)
YV9 = Prewash tank water filling solenoid valve (5.28 gal/min - 20 l/min)
YV11 = Prewash tank drain solenoid valve

Atmospheric plumbing circuit diagram, dishwashers - 66” (with boiler)	Atmospheric plumbing circuit diagram, dishwashers - 66” (without boiler)





LEGEND
A = Hot water inlet (related to boiler rise)
B = Hot water inlet 80-140F (26-60°C)
C = Hot water inlet min 194°F (90°C)
D = Cold water inlet
M2 = Rinse pump
M4 = Wash pump
M8 = Prewash pump
ABV = Air Break Valve
YV1 = Filling / Air-Gap filling solenoid valve (5.28 gal/min - 20 l/min)
YV5 = Wash tank drain solenoid valve
YV6 = Wash tank water filling solenoid valve (5.28 gal/min - 20 l/min)
YV9 = Prewash tank water filling solenoid valve (5.28 gal/min - 20 l/min)
YV11 = Prewash tank drain solenoid valve

E6.2 Installation diagrams

The following installation diagrams give the machine overall dimensions and position of water and electrical connections, as well as the position of the surround elements such as walls and extractor hoods.

In particular, make sure to position the possible extractor hood at a distance of not less than 15.74” (400mm) from the machine so as not to compromise machine operation.

IMPORTANT!

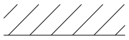
The extractor hood is installed to remove the steam emitted by the machine. The hood air delivery must be calculated taking into account the machine model, the type of installation and the work environment where installed. However, an air delivery of not greater than 300 m^3/h - 177 cfm is recommended.

The hood is represented in the diagrams with the symbol:

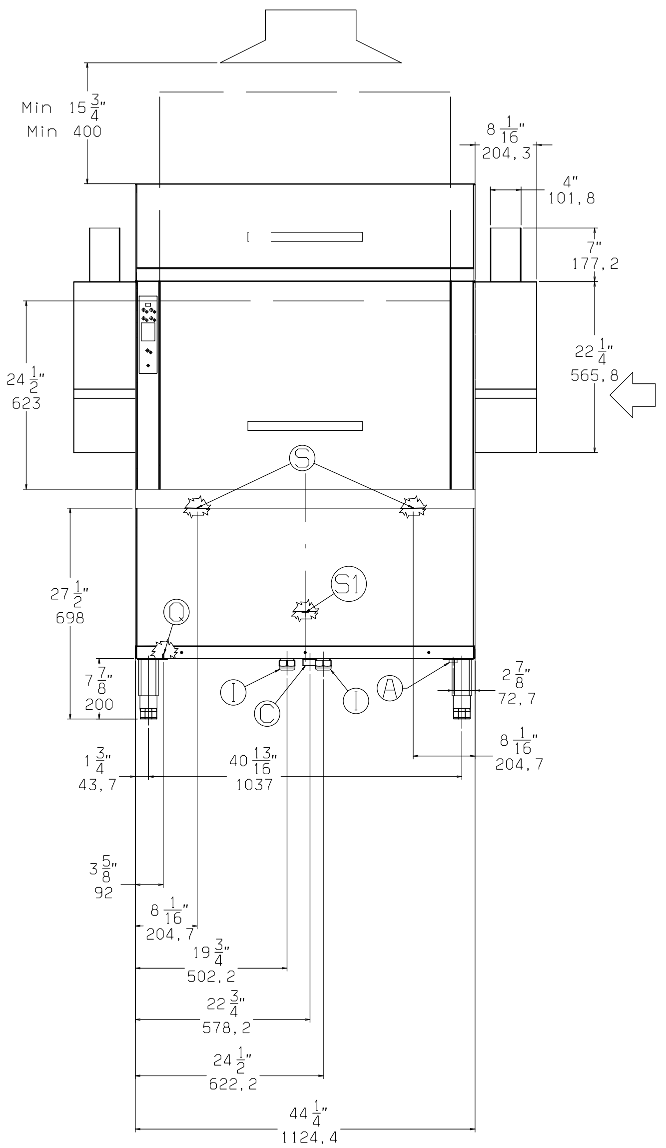


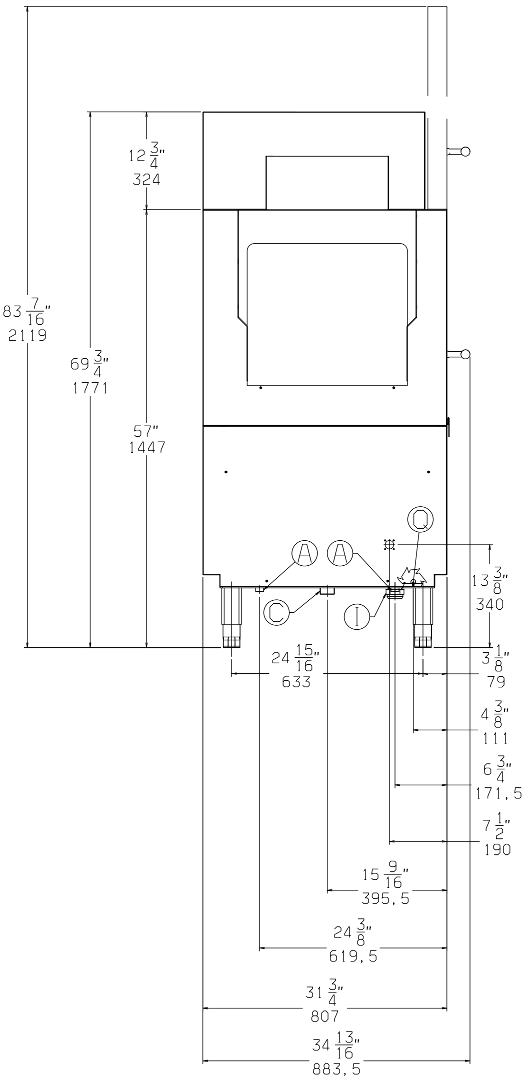
Also, the equipment must be installed at a distance of not less than 1.96” (50 mm) from the wall so as not to affect correct ventilation of internal components.

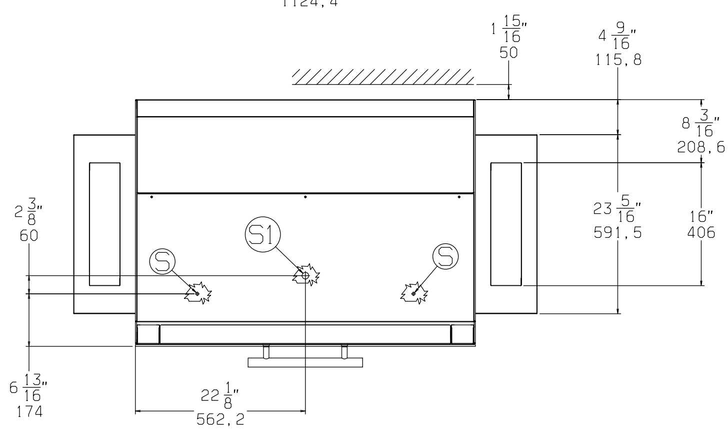
The wall is represented in the diagrams with the symbol:



Installation diagram - rack-type dishwasher, 44” left



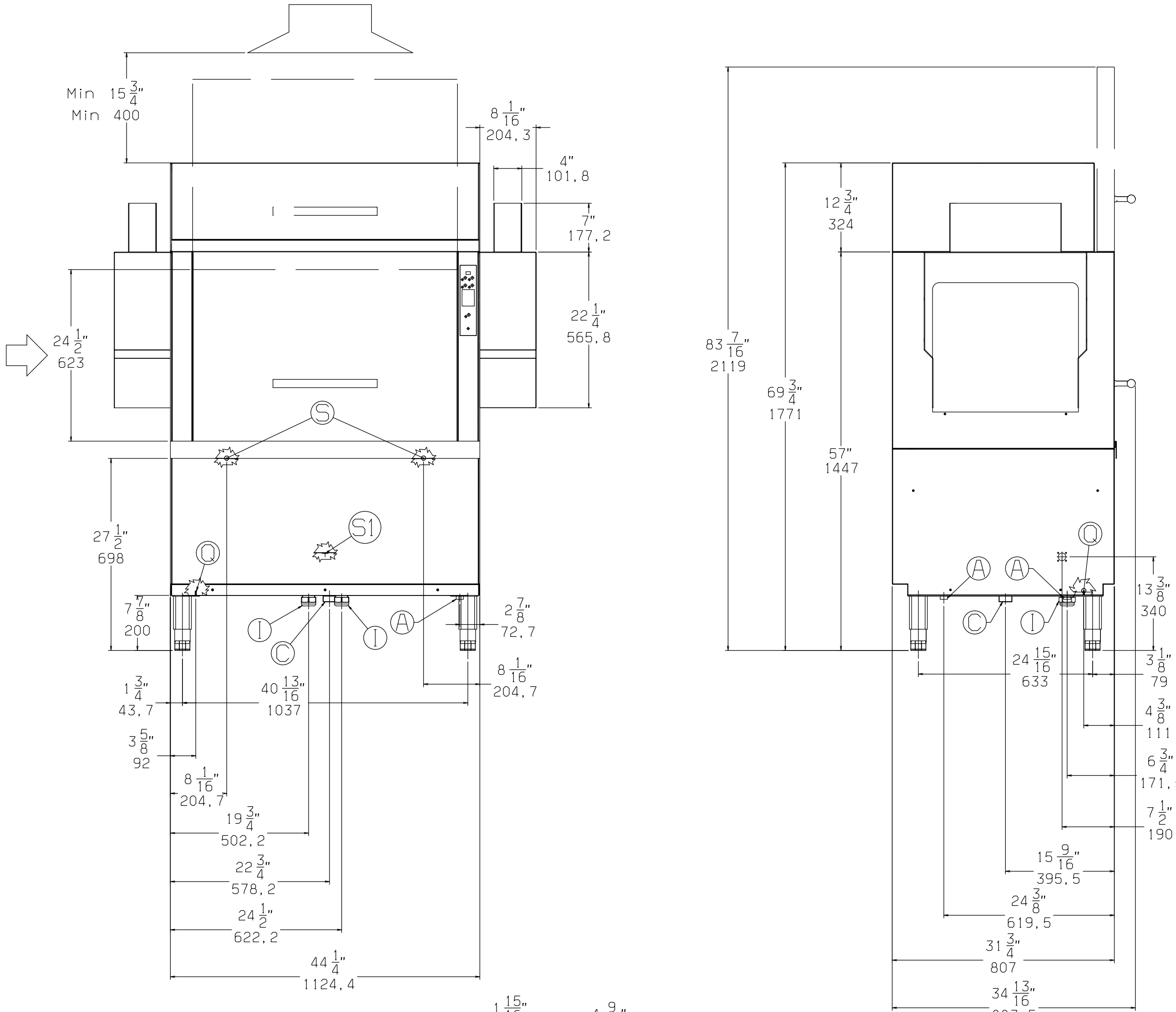


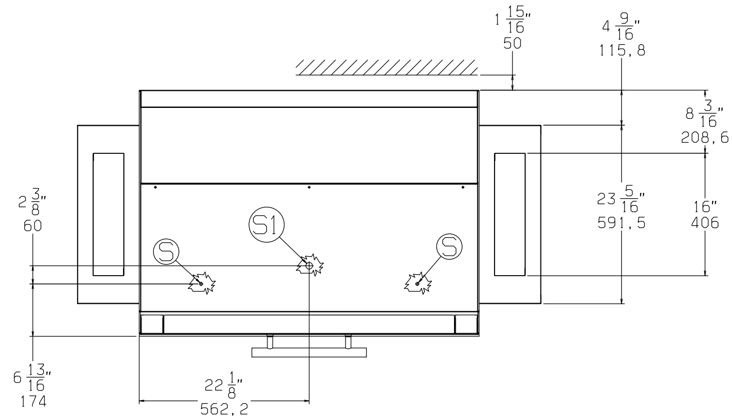


LEGEND

A Hot water inlet G 3/4”
B Cold water inlet G 3/4”
C Drain outlet G 1 1/2“
I Power supply entry
Q Equipotential screw
S Pipe inlet for detergents
S1 Detergent probe arrangement

Installation diagram - rack-type dishwasher, 44” right

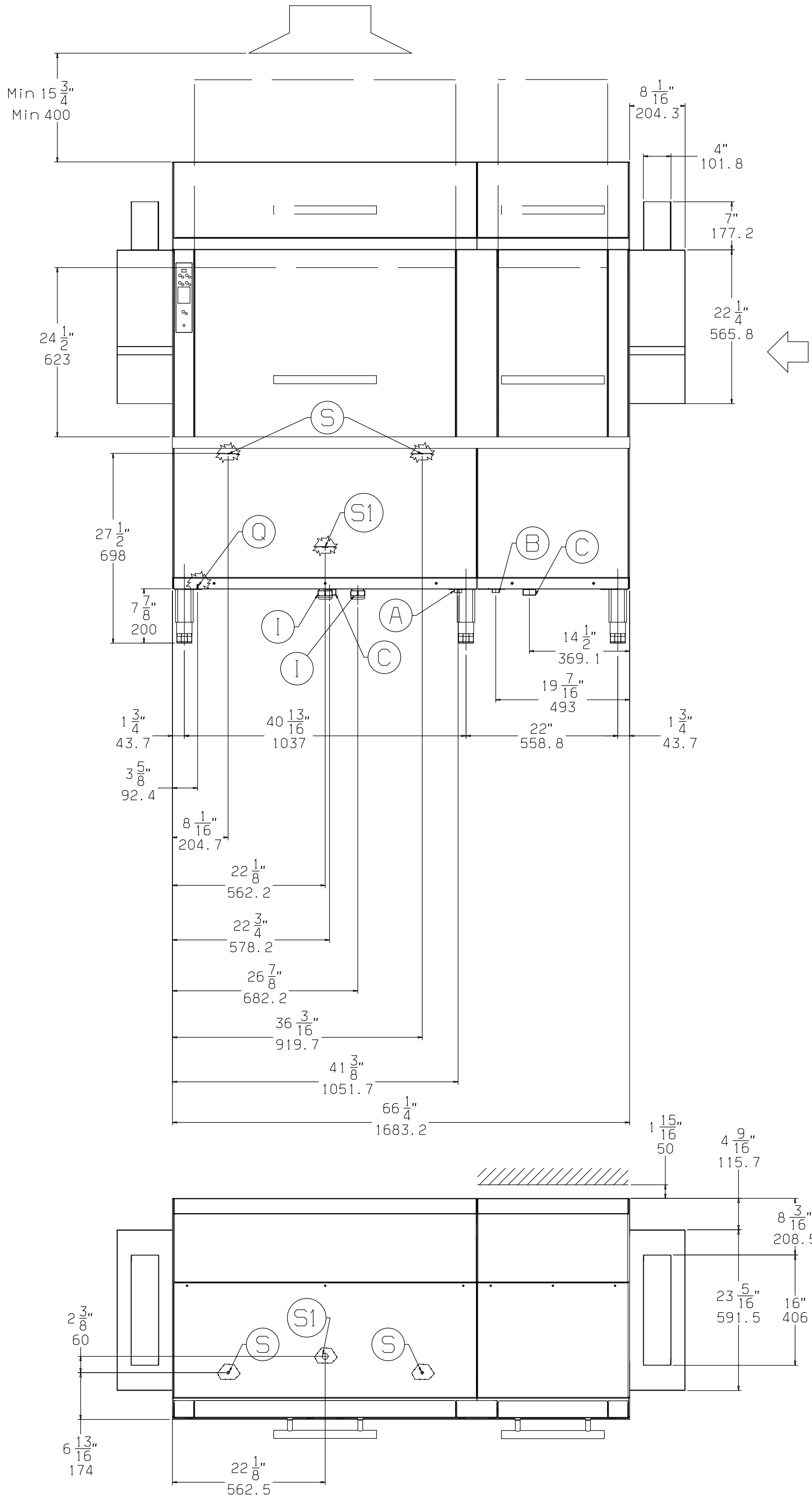


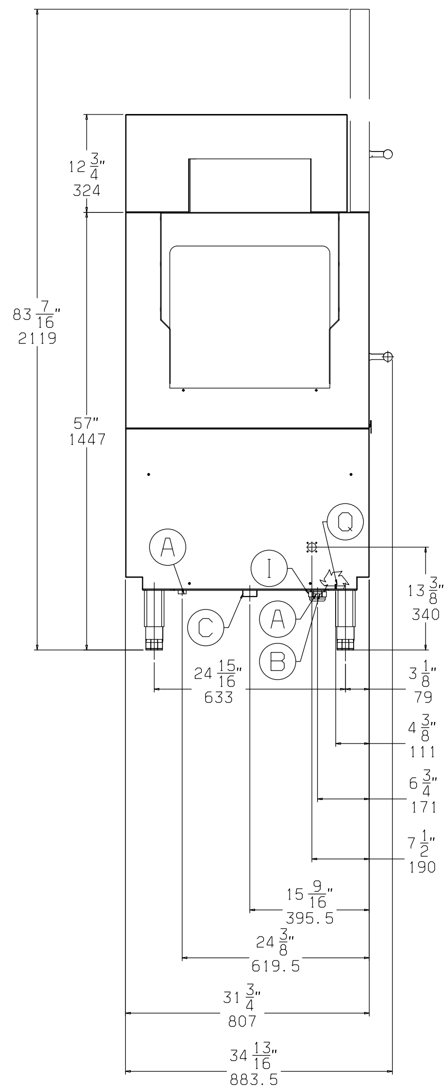


LEGEND

A Hot water inlet G 3/4”
B Cold water inlet G 3/4”
C Drain outlet G 1 1/2“
I Power supply entry
Q Equipotential screw
S Pipe inlet for detergents
S1 Detergent probe arrangement

Installation diagram - rack-type dishwasher, 66” left

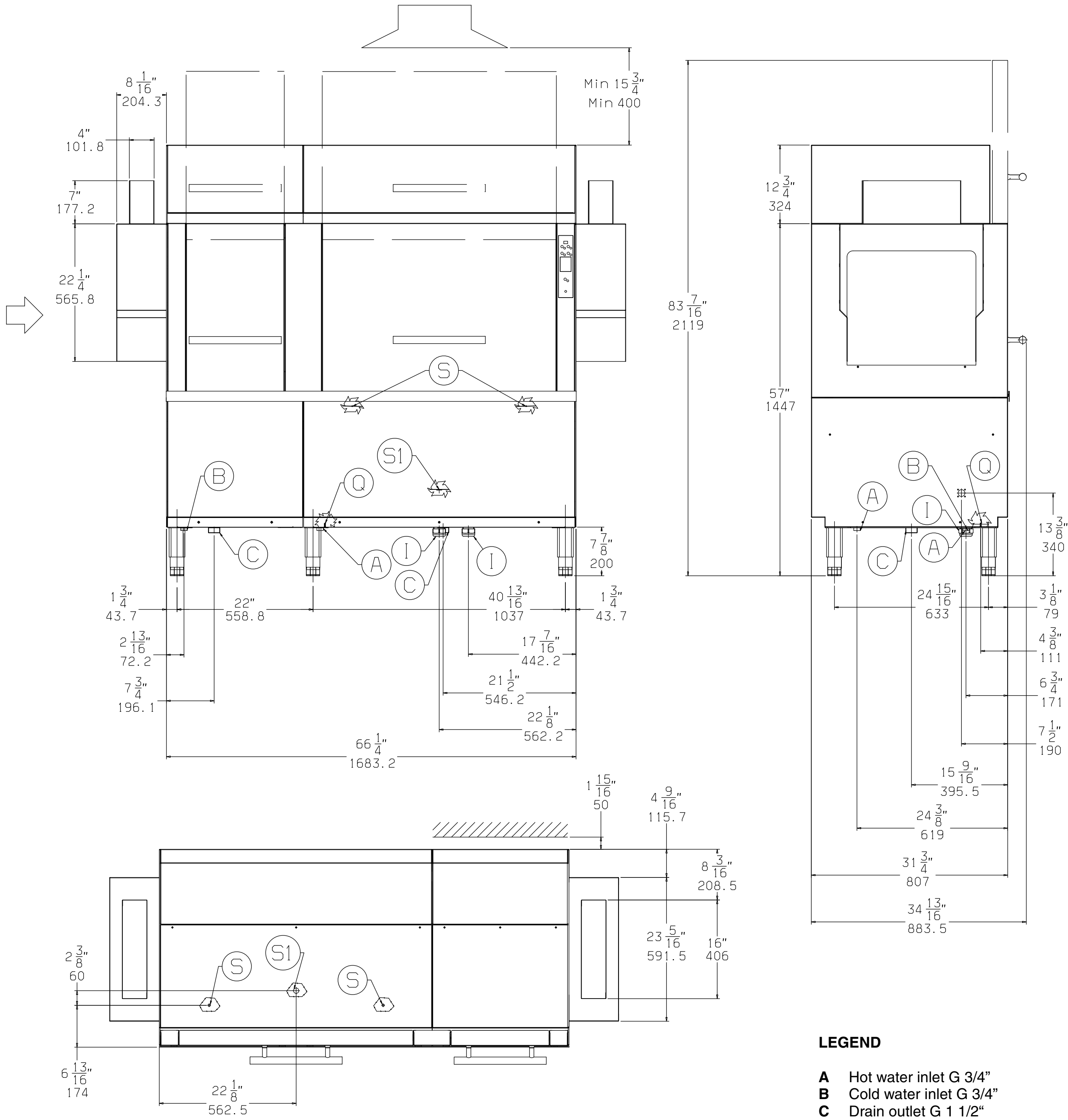




LEGEND

A Hot water inlet G 3/4”
B Cold water inlet G 3/4”
C Drain outlet G 1 1/2“
I Power supply entry
Q Equipotential screw
S Pipe inlet for detergents
S1 Detergent probe arrangement

Installation diagram - rack-type dishwasher, 66” right



LEGEND

A Hot water inlet G 3/4”
B Cold water inlet G 3/4”
C Drain outlet G 1 1/2“
I Power supply entry
Q Equipotential screw
S Pipe inlet for detergents
S1 Detergent probe arrangement

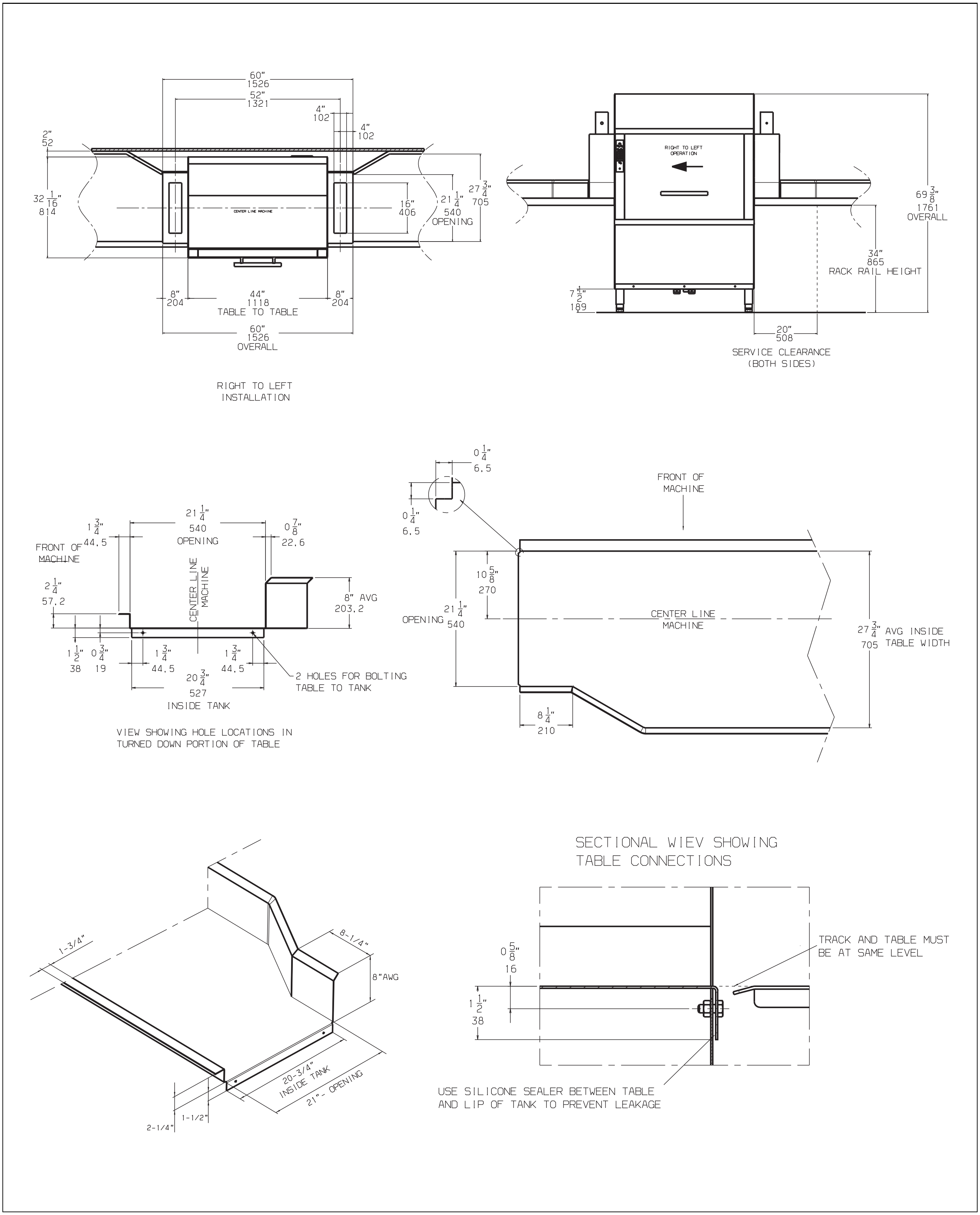


Figure 9 Installation diagram - Recommended table connection and fabrication

E7 Electrical connections

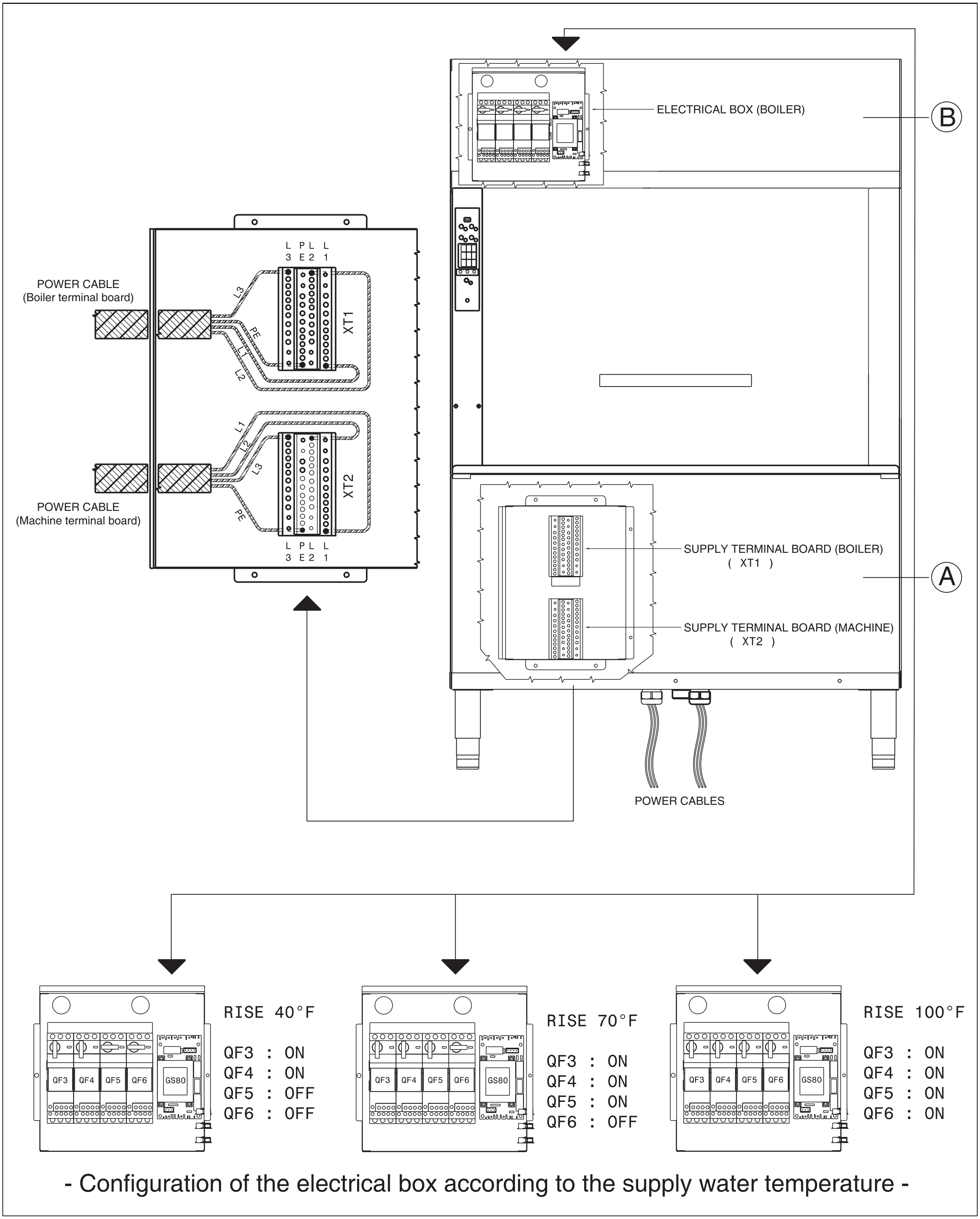


Figure 10 Electrical connections diagram

Connection to the power supply must be carried out in conformity with the current regulations and provisions in the country of use.

IMPORTANT

For supply connections, use suitable wires for at least 167°F (75°C). Use copper conductors only.

IMPORTANT!
Work on the electrical systems must only be carried out by a qualified electrician.

IMPORTANT

Before servicing, disconnect the electrical service and place a red tag at the disconnect switch to indicate work is being done on that circuit.

- Make sure the machine power supply voltage specified on the rating plate (Table 1) matches the mains voltage.
- Make sure the system power supply is arranged and able to take the actual current load and that it is executed in a workmanlike manner according to the regulations in force in the country of use.
- In case of doubts regarding the efficiency of the equipotential earth connection, or aspects concerning electrical safety, have the system checked by a qualified electrician.

To connect the power cable to the equipment, proceed as follows:

- remove the front panel “A” of the wash and rinse zone (Figure 10);
- connect the power cable to the terminal block as indicated in the wiring diagram attached to the equipment, and secure it with the special cable gland;

IMPORTANT!
The connection cable must be H07RN-F type, oilproof.

- close the front panel “A” of the wash and rinse zone (Figure 10).

IMPORTANT!
All electrical interventions ahead of the machine must be carried out by qualified electricians and with the power to the equipment being wired disconnected.

E8 Installation of detergent/rinse aid dispensers

The machine is arranged for installation of detergent and rinse aid dispensing devices.

The dispensers must be fitted in a way that does not compromise machine operation or safety.

IMPORTANT

Before servicing, disconnect the electrical service and place a red tag at the disconnect switch to indicate work is being done on that circuit.

IMPORTANT!
Do not start the machine if the dispenser devices do not meet the safety requirements of EC Directives or current regulations in the country of use.

CAUTION!
Contact with chemical substances (e.g. detergent, rinse aid, scale remover, etc.) without taking appropriate safety precautions (e.g. personal protection equipment) can involve exposure to chemical risk and possible damage to health. Therefore always refer to the safety cards and labels on the products used.

E8.1 Arrangement for water connection

Described below are all the possible plumbing connections that can be made in the machine for installing detergent or rinse aid dispensing devices.

IMPORTANT!
Carry out all the following plumbing connections with particular care, in order to avoid any leaks of liquid inside the machine and near the electrical connections.

IMPORTANT!
Faulty plumbing connections can cause low machine performance due to pressure losses in the system.

NOTICE!
This machine must be operated with an automatic detergent feeder and, if applicable, an automatic chemical sanitizer feeder, including a visual means to verify that detergents and sanitizers are delivered or a visual or audible alarm to signal if detergents and sanitizers are not available for delivery to the respective washing an sanitizing systems. Please see instructions for electrical and plumbing connections located in this manual and in the feeder equipment manual.

E8.1.1 Detergent concentration measurement probe

For positioning the detergent concentration measurement probe there is a hole "S1" (Ø 0.86" - 22 mm) closed with a plug (Figure 11) in the wash tank, as already indicated also in par. E6.2 "Installation diagrams".

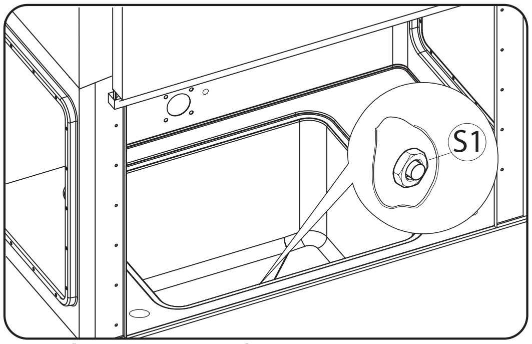


Figure 11 Hole for detergent probe

E8.1.2 Liquid detergent dispensers

Inside the wash tank there are two indents "S" (Ø 0.19" - 5 mm) to be perforated for fitting a liquid detergent injector (Figure 12),

as already indicated also in par. E6.2 "Installation diagrams".

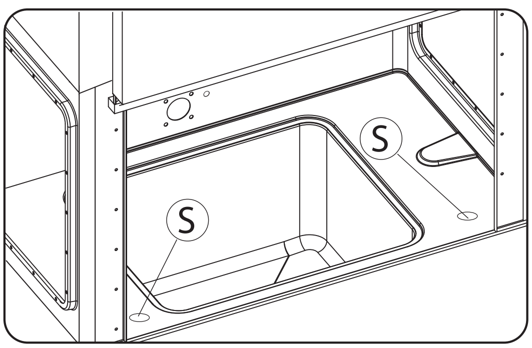


Figure 12 Arrangement for liquid detergent

E8.1.3 Rinse aid dispensers

The machine is supplied with a nipple, a piece of pipe and two clamps for connecting the rinse aid dispenser. Carefully follow the instructions given below to correctly carry out the connection for the rinse aid:

- remove the upper panel "B" (Figure 10);

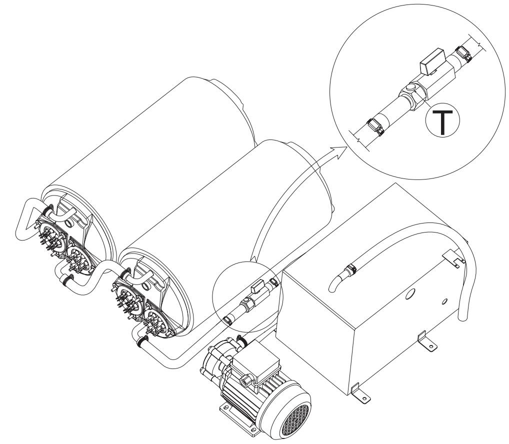


Figure 13 Rinse aid connection

- connect the rinse aid dispenser pipe, unscrewing plug "T" (Figure 13), always paying attention to potential plumbing leaks (tighten the clamps securely);
- refit the upper panel "B" (Figure 10).

E8.2 Arrangement for electrical connection

The electrical connection of the dispenser devices must be carried out by a specialized technician according **to that indicated in the wiring diagram on the machine.**

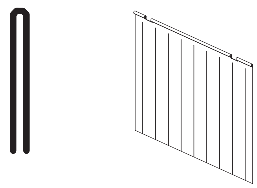
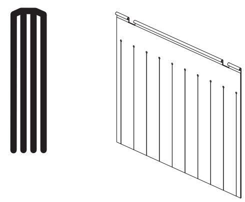
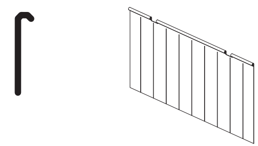
IMPORTANT!

Do not make direct connections on the printed circuits.

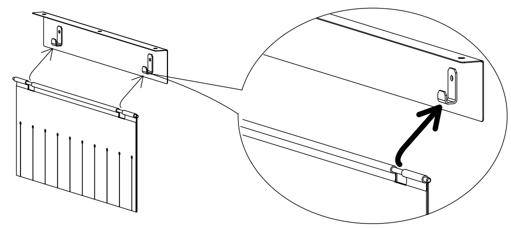
ENGLISH

E9 Fitting curtains

With the machine switched off and cold, fit or refit the curtains as illustrated below. The machines are represented in the assembly diagrams firstly in the version with left rack loading and then in the version with right rack loading.

Types of curtains on the machine		
Double long (1)	Quadruple long (2)	Single short (3)
		

Important:
fasten the curtains with the flat part against the hook.



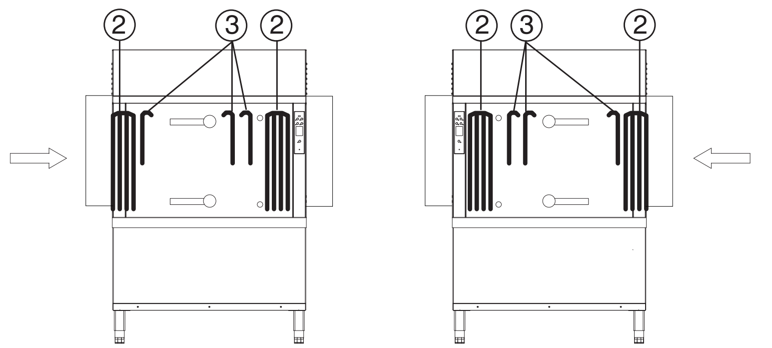
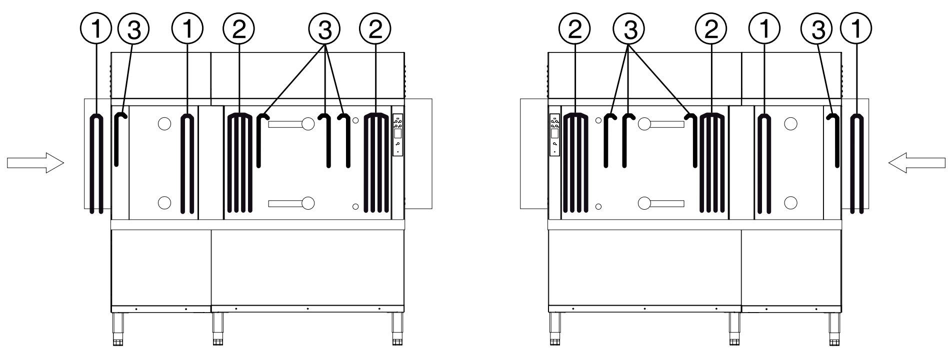
Rack-type dishwasher - 44”

Rack-type dishwasher - 66”


Figure 14 Diagram of curtain positioning on compact machines

E10 Installation of rack handling systems

CAUTION!

Machine installation operations must only be carried out by specialized Technicians provided with all the appropriate personal protection equipment (safety shoes, gloves, glasses, overalls, etc.), tools, utensils and ancillary means.

IMPORTANT

Before servicing, disconnect the electrical service and place a red tag at the disconnect switch to indicate work is being done on that circuit.

IMPORTANT!

Work on the electrical equipment must only be carried out by a qualified electrician.

E10.1 Arrangement for mechanical connection

See Figure 9 (**Installation diagram - Recommended table connection and fabrication**).

E10.2 Arrangement for electrical connection

The left and right side panels of the dishwasher have a connector "B" (Figure 15), closed with a plug "A" (Figure 15), to be used for carrying out the electrical connection of the rack handling systems.

IMPORTANT!

The rack handling system electrical connection power lines are protected against short circuits as shown in the wiring diagram. The dishwasher shall be installed in accordance with local codes, or in the absence of local codes, installed in accordance with the applicable requirements in the National Electrical Code, NFPA 70, Canadian Electrical Code (CEC), Part 1, CSA C22.1, and Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, NFPA 96.

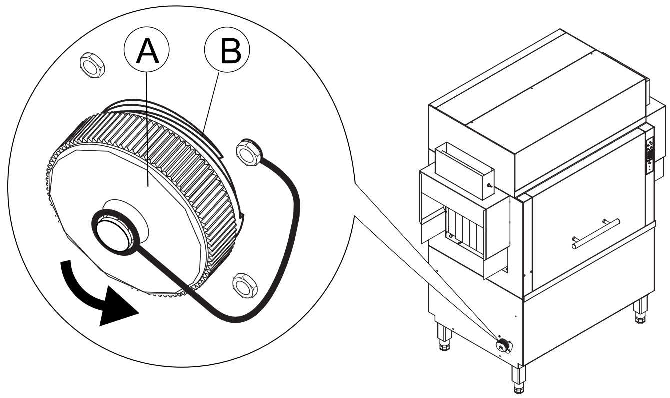


Figure 15 Handling electrical connection system

Whatever the type of system (motor-operated or not) to be connected to the dishwasher, proceed as follows:

- unscrew plug "A" (Figure 15) anticlockwise;
- connect the rack handling system connector "C" (Figure 16) to connector "B" of the dishwasher, according to electrical wiring diagram.

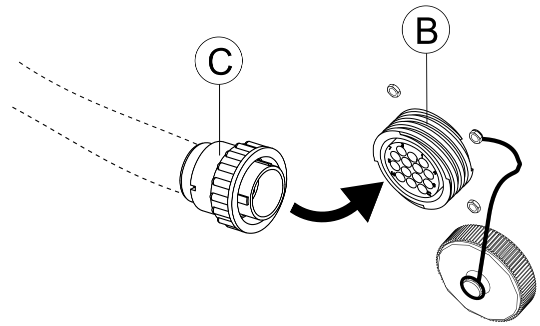


Figure 16 Detail of electrical connection

If a type "C" connector is not available for carrying out the connection, follow the indications in the machine wiring diagram: make sure to pass the external cable through the special cable gland, avoiding zones where the connection can be damaged (e.g. lower part of the machine, due to periodical cleaning of the floor with sweepers).

E10.3 Positioning of emergency switches

If rack handling systems are connected at the infeed or outfeed of a rack-type dishwasher, install on such systems emergency switches that are clearly visible and identifiable and easily accessed by the operator "R" (Figure 17) who must use them.

Described below are possible couplings of dishwashers "L" (Figure 17) with rack handling systems "M", with the corresponding positions of the emergency switches "E" and work stations "R" (Figure 17).

IMPORTANT!

The emergency switches installed on the machine do not exempt operators from diligent and careful use of the machine. The function of these devices guarantees prompt intervention in case of emergency.

IMPORTANT!

Operators must know the position of the emergency switches installed on the machine. The paths to reach and operate them must be kept free of obstacles.

IMPORTANT!

Emergency switches must be installed, otherwise the machine cannot operate (see wiring diagram).

IMPORTANT!

Anyone detecting a danger for persons must immediately operate one of the emergency stops; the same applies in case of operation anomalies and/or damage to parts of the machine requiring it to be stopped immediately.

E10.4 Emergency stop reinstatement

When an emergency switch is operated, restart the machine only after making sure that:

- the cause requiring operation of the emergency switch has been eliminated;
- restarting machine operation does not involve any hazard.

If the EMERGENCY SWITCH is operated during machine operation, the entire machine is deactivated.

To reinstate machine operation, proceed as follows:

- release the previously operated red emergency mushroom push button, turning or pulling it in order to disconnect its interlock;
- restart the machine according to what is described in par. I3 "Daily activation of machine".

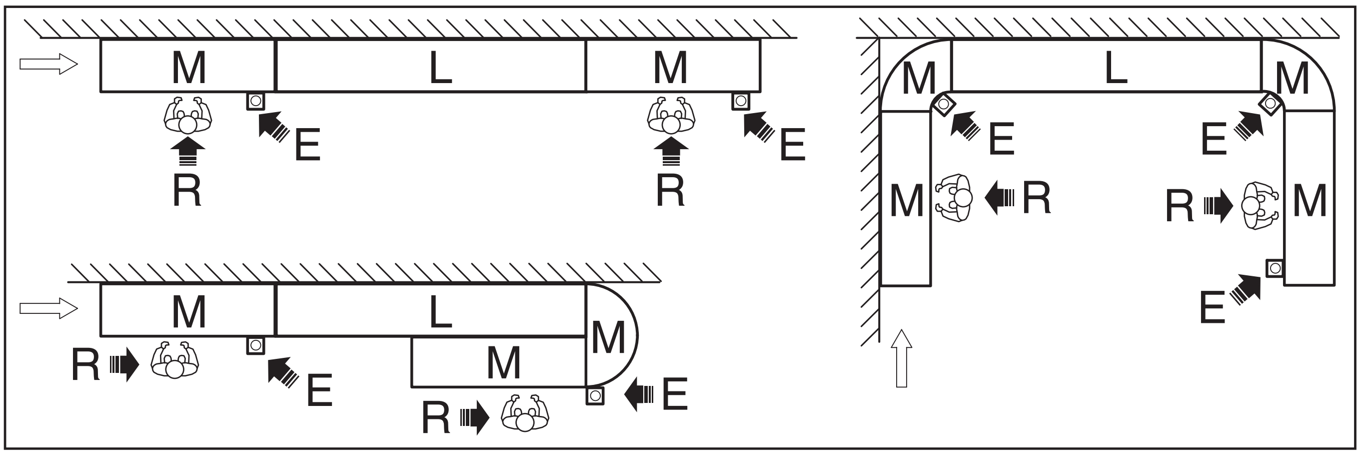
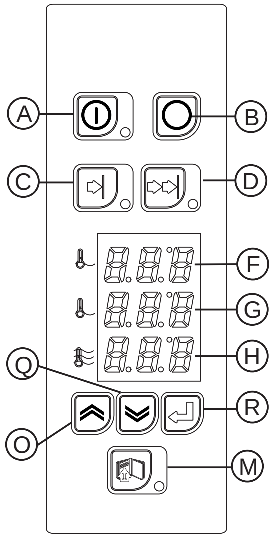


Figure 17 Examples of dishwasher and rack handling system couplings

F DESCRIPTION OF CONTROL PANEL

The possible control panel configurations for compact rack-type dishwashers are as follows:



LEGEND
A = On/Off
B = Stop
C = Start at speed 1
D = Start at speed 2
F = Prewash temperature or machine status
G = Wash temperature
H = Boiler temperature
M = Accessory functions
O = Increase key
Q = Decrease key
R = Confirmation key

Table 2 Control panel

Described below are all the single keys and functions present in the various control panel models listed above. Some functions are shared by all models of the range, whereas others are available only on several versions.

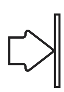
F1 Basic controls

On/Off



This key indicates the status of the equipment: on or off. When the appliance is on, the key is lit.

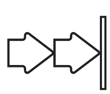
Start at speed 1 (low speed)



This key is used to start a wash cycle at speed 1. This speed is recommended for washing very dirty dishes.

To guarantee an adequate cleanless in the washing of the glasses it is advised the speed 1.

Start at speed 2 (high speed)



This key is used to start a wash cycle at speed 2. This speed is recommended for washing medium dirty or not very dirty dishes.

When a speed is selected the corresponding key is lit.

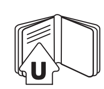
Stop



This key is used to stop a wash phase or drain/cleaning cycle.

F2 Accessory function selection controls

Accessory functions



This key is used to access the “accessory functions” menu which is displayed.

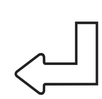
When activating the accessory functions menu or executing one of these functions the corresponding light is on.

To quit the accessory functions menu, press the accessory functions key again.

After entering the accessory functions menu, the required function can be selected by means of the increase (“O” - Table 2) and decrease (“Q” - Table 2) keys.



After selecting the required accessory function, it can be started by pressing the confirm key (“R” Table 2).



G1 Preliminary checks, adjustments and operational tests

G1.1 Electrical and plumbing checks

Before starting the machine:

- check correct connection of the electrical wires that feed the machine;
- make sure the power supply voltage and frequency match the data given in Table 1;
- check correct connection of the water supply and drain pipes (par. E6 “Plumbing connections”);
- make sure all the guards, safety devices and emergency switches are in place and efficient.

IMPORTANT!
These operations must only be carried out by specialized technicians provided with adequate personal protection equipment (e.g. safety footwear, gloves, glasses, etc.), tools and suitable ancillary equipment.

G1.2 Check the positioning of tank components

IMPORTANT!
The following operations must be carried out by operators provided with suitable personal protection equipment (e.g. protective gloves, etc.) with the machine switched off and cold.

Make sure the filters, arms and curtains are fitted in the correct position in every module making up the machine.

G1.2.1 Check the fitting of filters and overflows

Make sure the overflow “1” and the flat filters “2” (Figure 18) are fitted in the prewash module, if present in the machine.

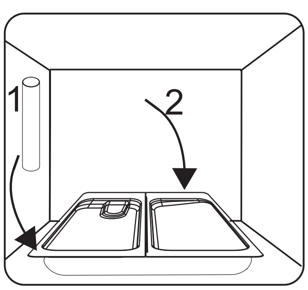


Figure 18 Prewash module tank filters

Make sure the overflow “1”, flat filter/s “2” and box strainer/s “3” (Figure 19) are fitted in the wash/rinse module.

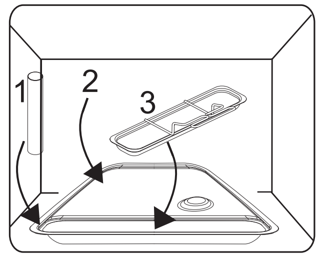


Figure 19 Wash/rinse module tank filters

G1.2.2 Check the fitting of arms and curtains

Make sure the upper and lower prewash (Figure 20), wash (Figure 21) and rinse (Figure 22) arms are correctly fitted.

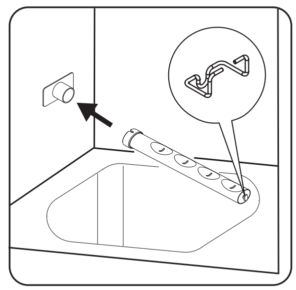


Figure 20 Prewash

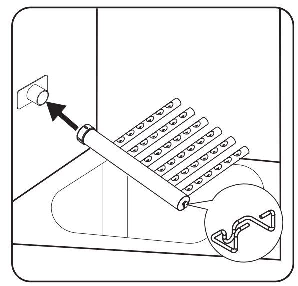


Figure 21 Wash

Also make sure the prewash and wash arm couplings are correctly locked and that the rinse arm ring nuts are secured.

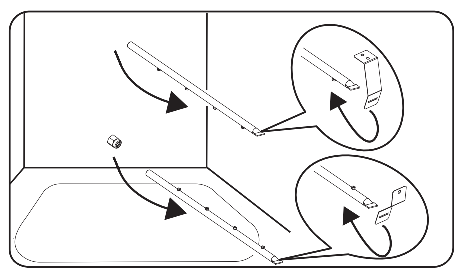


Figure 22 Rinse

Make sure all the types of curtains, provided for the machine model, are correctly fitted according to that indicated in par. E9 “Fitting curtains”.

Close the doors of the various machine modules only when all the parts previously described are correctly installed, then start the dishwasher.

IMPORTANT!
The machine can be started only if assembled in compliance with what is established in this manual.

G2 Starting

- Open the water supply cocks.
- Connect the electrical service. Press the On/Off key Table 2 (“A” - “Control panel”).

H GENERAL SAFETY RULES

H1 Introduction

The machines are provided with electric and/or mechanical safety devices for protecting workers and the machine itself. Therefore the user must not remove or tamper with such devices.

The Manufacturer declines any liability for damage due to tampering or their non-use.

H1.1 Protection devices installed on the machine

H1.1.1 Guards

The guards on the machine are:

- fixed guards (e.g. casings, covers, side panelling, etc.), fixed to the machine and/or frame with screws or quick-release couplings that can only be removed or opened with tools;
- interlocked movable guards (front panels) for access to inside the machine;
- access doors to the machine's electrical equipment, made from hinged panels openable with tools. The door must not be opened during machine movement, if inside the door there is equipment that is hazardous when live or under pressure.

IMPORTANT!
Several illustrations in the manual represent the machine, or parts of it, without guards or with guards removed. This is purely for explanatory requirements. Never operate the machine without the guards or with the safety devices deactivated.

H1.1.2 Safety devices

The machine has:

- a yellow/red main switch that acts as an emergency switch;
- interlocks on the front panels giving access to inside the machine;
- emergency stop push buttons and stops must be installed on the rack handling tables in case the racks exceed their travel.

H1.2 Safety signs to be displayed on the machine

PROHIBITION	MEANING
	**Do not oil, lubricate, repair and adjust moving parts.**
	**Do not remove the safety devices.**
	**Do not use water to extinguish fires (shown on electrical parts).**

DANGER	MEANING
	**DANGER OF CRUSHING HANDS**
	**DANGER OF BURNS**
	**DANGER OF ELECTROCUTION (shown on electrical parts with indication of voltage).**

WARNING!
Do not remove, tamper with or make the labels on the machine illegible.

ref. A

CAUTION
THIS DISHWASHER HAS MORE THAN ONE POWER-SUPPLY CONNECTION POINT. DISCONNECT ALL POWER SUPPLIES BEFORE SERVICING.
Doc.No.: 5956.613.00

ref. B

MINIMUM WASH TEMPERATURE 160°F (71°C)
MINIMUM PUMPED RINSE TEMPERATURE 180°F (82°C)
MINIMUM SANITIZING RINSE TEMPERATURE 180 °F (82 °C)
MAX. CONVEYOR SPEED 5.48 FT./MIN (1.67 M/MIN)
Doc.No.: 5956.582.00

WARNING
THERE ARE MOVING PARTS.
THERE IS THE POSSIBILITY OF SPRAYING AND SPLASHING OF HOT WATER.
Doc.No.: 5956.582.00

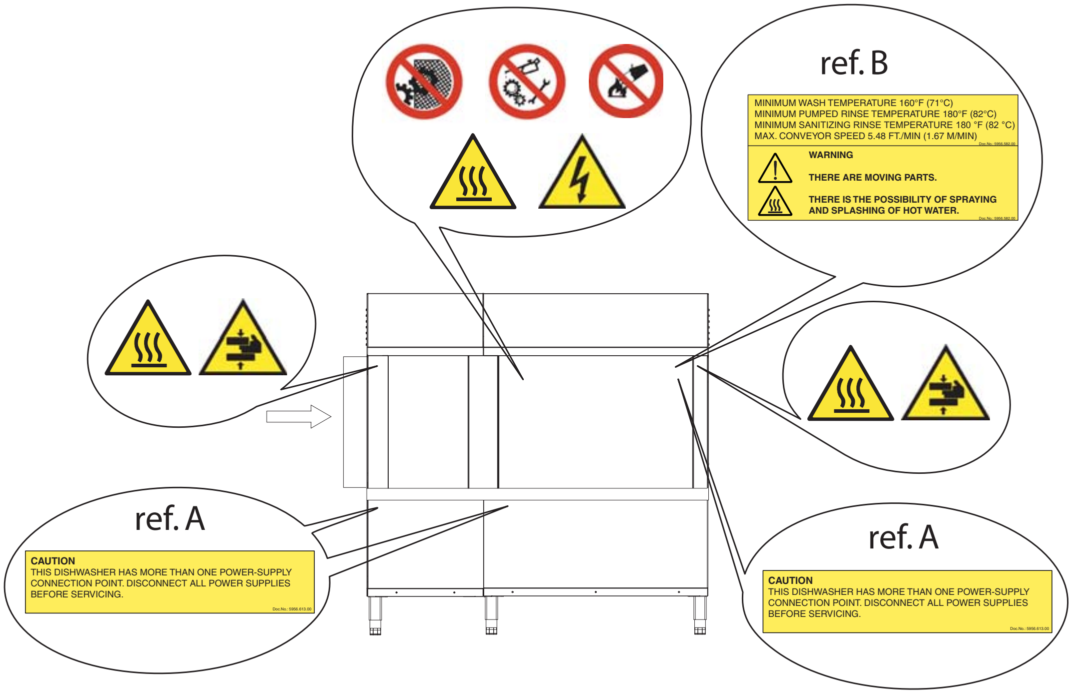


Figure 23 Positioning of safety signs

H2 Decommissioning

When the machine is no longer to be used, make it unusable by removing the feed wiring from the power supply and the water connections.

H3 Instructions for use and maintenance

Risks mainly of a mechanical, thermal and electrical nature are present in the machine.

Where possible the risks have been neutralized:

- directly, by means of adequate design solutions,
- or indirectly by using guards, protection and safety devices.

Any anomalous situations are signalled on the control panel display.

During maintenance several risks remain, as these could not be eliminated and which must be neutralized through specific behaviour and precautions.

Do not carry out any control, cleaning, repair or maintenance operations on moving parts.

Workers must be informed of the prohibition by means of clearly visible signs.

To guarantee machine efficiency and correct operation, periodical maintenance must be carried out according to the instructions given in this manual.

In particular, make sure to periodically check correct operation of all the safety devices and the insulation of electrical cables, which must be replaced if damaged.

⚠ **IMPORTANT!**

Machine maintenance operations must only be carried out by specialized Technicians provided with all necessary personal protection equipment (safety shoes, gloves, glasses, overalls, etc.), tools, utensils and suitable ancillary means.

⚠ **WARNING!**

Never operate the machine by removing, modifying or tampering with the guards and protection or safety devices.

⚠ **IMPORTANT!**

Before carrying out any operation on the machine, always consult the manual which gives the correct procedures and contains important information on safety.

H4 Improper use

Improper use is any use differing from that specified in this manual. During machine operation, other types of work or activities considered improper and that in general can involve risks for the safety of operators and damage to the system are not allowed.

Improper use includes:

- failure to disconnect the power supply with the main switch in “O” off position before carrying out adjustment, cleaning, resetting and maintenance operations;

- failure to disconnect the power supply with the main switch in off position “O” at the end of the day;
- lack of machine maintenance, cleaning and periodical checks;
- structural changes or modifications to the operating logic;
- tampering with the guards or safety devices;
- failure to use personal protection equipment by operators, specialized technicians and maintenance personnel;
- failure to use suitable accessories (e.g. use of equipment, ladders, etc., unsuitable for carrying out maintenance on equipment positioned inside the machine);
- keeping combustible or flammable materials, or in any case materials not compatible with or pertinent to the work, near the machine;
- incorrect machine installation (see chapter E “Installation and assembly”);
- placing in the machine any objects or things not compatible with washing or that can obstruct/damage the machine or persons or pollute the environment;
- non-compliance with the requirements for correct machine use;
- other actions that can cause risks not eliminable by the Manufacturer.

H5 Residual risks

The machine has several risks that were not completely eliminated from a design standpoint or with the installation of adequate protection devices.

Nevertheless, through this manual the Manufacturer has taken steps to inform operators of such risks, carefully indicating the personal protection equipment to be used by them.

Sufficient spaces are provided for during the machine installation phases in order to limit these risks.

To preserve these conditions, the corridors and areas around the machine must always be:

- kept free of obstacles (e.g. ladders, tools, containers, boxes, etc.);
- clean and dry;
- well lit.

For the Customer’s complete information, the residual risks remaining on the machine are given below; such actions are to be considered incorrect and therefore strictly forbidden.

RESIDUAL RISK	DESCRIPTION OF HAZARDOUS SITUATION
Slipping or falling	The operator can slip due to water or dirt on the floor.
Catching, dragging or crushing	Catching or dragging of the operator or other persons in the drive, during the machine work phase, due to improper actions, such as: - placing an arm inside the machine to remove a stuck rack without stopping the machine by operating an emergency switch; - accessing the rack handling system without stopping the machine by operating an emergency switch. Use of improper clothing with loose parts (e.g. necklaces, scarves, shawls, ties, etc.) or long hair not gathered, which could get caught up in moving parts.
Burns	The operator deliberately or unintentionally touches some components inside the machine or dishes at the outfeed without using gloves or without allowing them to cool.
Shearing of upper limbs	The operator violently closes the front panels.
Electrocution	Contact with live parts during maintenance operations carried out with the electrical panel powered. The operator intervenes (with a power tool or without disconnecting the power to the machine) lying down on the wet floor.
Falling from above	The operator intervenes on the machine using unsuitable systems to access the upper part (e.g. rung ladders, or climbs on it).
Tipping of loads	During maintenance on the machine or the packing containing the machine with the use of unsuitable accessories or lifting systems or with load unbalanced.
Chemical	Contact with chemical substances (e.g. detergent, rinse aid, scale remover, etc.) without taking adequate safety precautions. Therefore always refer to the safety cards and labels on the products used.

Table 3 Residual risks

I NORMAL MACHINE USE

I1 Correct use

Our appliances are designed and optimized in order to obtain high performance and efficiency. This equipment must only be used for its expressly designed purpose, i.e. washing dishes with water and specific detergents. Any other use is to be deemed improper.

I2 Characteristics of personnel trained for normal machine use

The Customer must make sure that personnel qualified for normal machine use are adequately trained and skilled in their duties, as well as ensuring his own safety and that of other persons.

The Customer must make sure his personnel have understood the instructions received and in particular those regarding work hygiene and safety in use of the machine.

I2.1 Characteristics of personnel enabled to operate on the machine

The Customer is responsible for ensuring that persons assigned to the various duties:

- read and understand the manual;
- receive adequate training and instruction for their duties in order to perform them safely;
- receive specific training for correct machine use.

I2.1.1 Operator qualified for normal use

He must have at least:

- knowledge of the technology and specific experience in operating the machine;
- adequate general basic education and technical knowledge for reading and understanding the contents of the manual,
- the capacity for a correct interpretation of the drawings, signs and pictograms;
- sufficient technical knowledge for safely performing his duties as specified in the manual;
- knowledge of the regulations on work hygiene and safety.

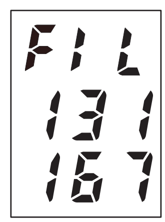
In the event of a significant anomaly (e.g. short circuits, wires coming out of the terminal block, motor breakdowns, worn electrical cable sheathing, etc.) the operator qualified for normal machine use must:

- immediately deactivate the machine by turning the main switch to “O” or operating the main emergency switch on the machine;
- close the machine water supply by shutting off the water.

I3 Daily activation of machine

- Make sure the filters, arms and curtains are correctly fitted according to that indicated in par. G1.2 “Check the positioning of tank components” and E9 “Fitting curtains”.
- Make sure there are no foreign objects or materials not pertinent to the process on the conveyors and inside the machine.
- Make sure there are no persons extraneous to the work, or who are carrying out operations not compatible with dishwasher starting, in the immediate vicinity of the machine.
- Close the doors of the various machine modules.
- Open the water supply cocks.
- Activate the main switch by turning it to position “I”.
- Press the On/Off key (“A” - Table 2).

- The light of key "A" (Table 2) comes on indicating that the dishwasher is powered and is filling and heating water. During the entire filling and heating phase the display shows:
- - FILL (“F” - Table 2)
- - wash temperature ("G" - Table 2)
- - boiler temperature ("H" - Table 2).

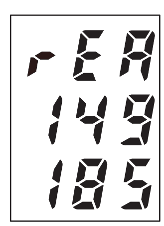


- The dishwasher can begin washing when the tanks are filled and the temperatures have reached the set levels.

I3.1 Wash phase

When the following message appears on the display:

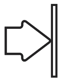
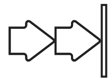
- rEAdY (“F” - Table 2)
- wash temperature (“G” - Table 2)
- boiler temperature (“H” - Table 2).



the operator can start the wash phase.

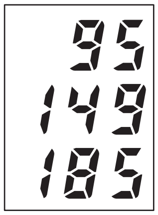
At the same time, the start key corresponding to the last rack feed speed set flashes on the control panel.

To start washing select one of the start keys (“C” or “D” - Table 2).

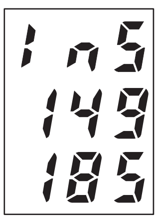
The machine starts washing and the display shows:

- prewash temperature (“F” - Table 2) (if present in machine)
- wash temperature (“G” - Table 2)
- boiler temperature (“H” - Table 2).



If racks are not inserted after a few seconds, the conveyor continues operating whereas the pumps stop and the display shows:

- InSErt (“F” - Table 2)
- wash temperature (“G” - Table 2)
- boiler temperature (“H” - Table 2).

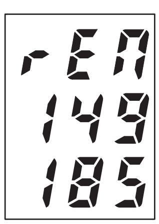


Clean and arrange the dirty dishes on the racks as indicated in par. I3.5 “Loading dishes on racks”.

Insert a rack with dishes in the dishwasher infeed and allow the automatic feed system to take it to the various wash zones.

An acoustic signal sounds when a rack reaches the end of the conveying system; the display shows:

- rEM (Remove) (“F” - Table 2)
- wash temperature (“G” - Table 2)
- boiler temperature (“H” - Table 2).



Remove the rack and load new racks with dirty dishes at the dishwasher infeed.



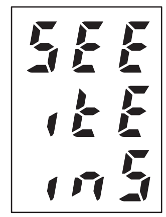
IMPORTANT!

The Customer must appraise, according to the current regulations in the country of use, the risk concerning manual handling of loads by operators, on the basis of ergonomic aspects and the weights to be handled, as well as the work loads.

I3.2 Rack jamming

If the dishes are not correctly loaded on the racks, jamming may occur inside the tunnel, and the display shows:

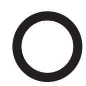
- SEE (“F” - Table 2)
- itEM (“G” - Table 2)
- inSidE (“H” - Table 2).



Switch the machine off, open the doors and eliminate the cause of jamming.

I3.3 Wash phase stop

Press the **Stop** key (“B” - Table 2) to stop the wash phase.



Washing stops, and the machine stays on standby mode (Ready). Press a start key to restart washing.

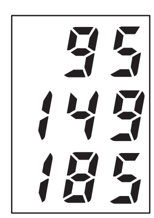
I3.4 Temperature display

The prewash temperature, if present in the machine, can be displayed during all the above phases by selecting the increase key (“O” - Table 2):



the following is displayed for 30 seconds:

- prewash temperature (“F” - Table 2)
- wash temperature (“G” - Table 2)
- boiler temperature (“H” - Table 2).



To return to the standard display press the decrease key ("Q" - Table 2):



WARNING!

Inside the machine there are temperatures with risk of burns: if necessary, intervene with the machine cold or using suitable protection equipment (e.g. gloves).

I3.5 Loading dishes on racks

The rack-type dishwasher is suitable for washing dishes, glasses, cups, cutlery, trays, containers and receptacles in plastic and/or steel used for preparing, cooking and serving; as well as a wide variety of ceramic and/or metal cooking utensils. However it is advisable not to wash decorated dishes or place silverware in contact with other metals.

IMPORTANT!

All the dishes must be arranged in the special racks in order to be washed; do not place dishes directly on the rack conveyor system.

IMPORTANT!

The rack-type dishwasher must only be used for washing dishes, containers, etc. (see above) do not use the machine to wash animals or food (e.g. fruit, vegetables, meat or fish).

Before inserting the racks in the machine, clear the dishes of any food residuals and rinse them with cold or lukewarm water (at a max. temperature of 35°C / 95°F), using a manual prewash spray.

Arrange the dishes on the racks, observing the following:

- Hollow containers such as cups, glasses, pots, etc., must be arranged with openings facing downwards, to avoid collecting water inside.
- Arrange dishes and pans on the racks following the feed direction of the rack conveyor system (Figure 24 / Figure 25).

IMPORTANT!

To facilitate the flow of water leave a space of 3.93" (100 mm) between each pan.

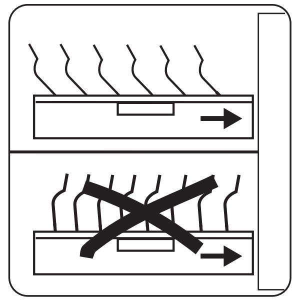


Figure 24 Positioning dishes

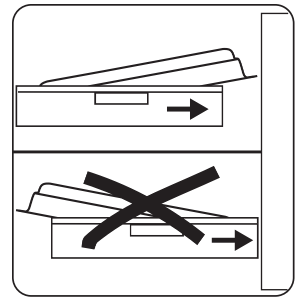


Figure 25 Positioning pans

- Position the trays on the racks with the long side in the feed direction of the conveyor system, leaving the last rack position free, since a tray positioned there could collide with the wall of the machine (Figure 26).

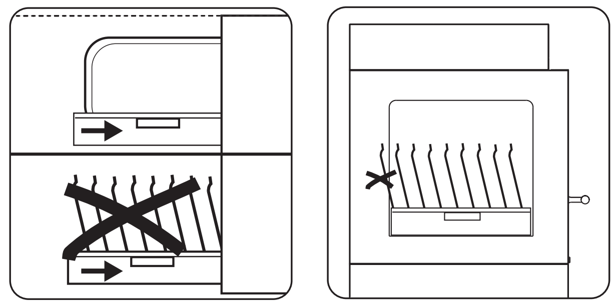


Figure 26 Positioning trays

WARNING!

Keep limbs away from the rack entry zone - danger of crushing.

I3.6 Accessory functions

To activate an accessory function make sure the machine is not in the wash phase; if necessary press the **Stop** key ("B" - Table 2).



Press the **accessory functions** key ("M" - Table 2)



the accessory functions menu is accessed.

To quit the accessory functions menu, press the **accessory functions** key ("M" - Table 2) again.

After entering the accessory functions menu the required function can be selected by means of the increase ("O" - Table 2) and decrease ("Q" - Table 2) keys.



The accessory functions that can be activated are:

Function	Description	Display
DRAIN TANKS	Complete emptying of all machine tanks.	drn ALL
DRAIN PREWASH	Complete emptying of prewash tanks (if present in machine).	drn PrE
DRAIN WASH	Complete emptying of wash tank.	drn tAn
DRAIN & CLEAN	Cleaning inside machine and complete emptying of all tanks.	drn CLE
DRAIN AIR GAP	Complete emptying of air gap.	drn AIG
SANITIZATION (optional)	Complete emptying of all machine tanks and refilling of tanks with clean water. Heating of water up to 75°C/167°F and wash for 1 minute, then complete emptying of tanks.	SAn

Table 4 Accessory functions

After selecting the required accessory function, it can be started by pressing the confirm key (“R” Table 2).

When an accessory function is being performed, the message corresponding to the function selected (see Table 4 “Accessory functions”) flashes.

When an accessory function has ended, the dishwasher emits three acoustic signals; the display shows the message corresponding to the function selected and the message "End" appears on the third line.

For example:

drn
ALL
End

It is now possible to:

- switch the machine off by pressing the **On/Off** key (“A” - Table 2)
- quit the accessory functions mode and restart tank filling by pressing the accessory **functions key** (“M” - Table 2)

I3.7 Door open

When one or more doors are open, the indicator “T” (Table 2) flashes and the display shows:

- dOOr (“F” - Table 2)
- OPEn (“G” - Table 2)
- number corresponding to the module with door open (“G” - Table 2)

2 : wash + rinse module
3 : prewash module

dOO
OPE
2

Close all open doors and restore normal dishwasher operation.

I3.8 Emergency stop

When the emergency mushroom push button is activated, the dishwasher emits an acoustic signal, the display shows

EMr

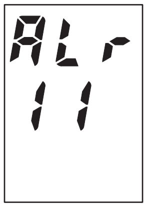
Deactivate the emergency mushroom push button to restore normal dishwasher operation, following that given in par. E10.4 “Emergency stop reinstatement”.

I3.9 General alarm

When the dishwasher has a general anomaly it emits an acoustic signal, the display shows:

- ALr (Alarm) (“F” - Table 2)
- alarm code (“G” - Table 2).

For example:



List of possible documented machine alarms:

Wash/rinse zone alarms	
Code	**Description**
11	The Air Gap was not completely filled within the max. filling time.
12	The pressure sensor on the Air Gap electronic board does not work correctly.
15	The required temperature was not reached in the boiler within the max. heating time.
16	The water temperature in the boiler is too high.
17	The boiler temperature sensor is short-circuited.
18	The boiler temperature sensor is open.
23	The rinse pump thermal protector, the wash pump thermal protector, or the CU (Condensing unit) fan thermal protector has tripped.
27	The inverter that controls the feeding gearmotor has generated an error.
30	The Air Gap was not completely emptied within the max. emptying time provided for.
31	The wash tank was not completely filled within the max. filling time.
32	The pressure sensor on the wash tank does not work correctly.
33	The required temperature in the wash tank was not reached within the max. heating time.
34	The water temperature in the wash tank is too high.
35	The wash tank temperature sensor is short-circuited.
36	The wash tank temperature sensor is open.
40	The wash tank was not completely emptied within the max. emptying time.
76	The inverter that controls the feeding gearmotor has generated an error.
77	The inverter that controls the feeding gearmotor has generated an error.
82	The required temperature was not reached in the first boiler within the max. heating time.
83	The water temperature in the first boiler is too high.
84	The first boiler temperature sensor is short-circuited.
85	The first boiler temperature sensor is open.

Prewash zone alarms	
Code	**Description**
51	The prewash tank was not completely filled within the max. filling time.
52	The pressure sensor on the prewash tank does not work correctly.
53	The required temperature in the prewash tank was not reached within the max. heating time.
54	The water temperature in the prewash tank is too high.
55	The prewash tank temperature sensor is short-circuited.
56	The prewash tank temperature sensor is open.
57	The prewash pump thermal protector has tripped.
58	The prewash tank was not completely emptied within the max. emptying time.

Communication alarms	
Code	**Description**
COM Err	Communication problems between machine electronic boards.
91	Communication problems between machine electronic boards.

I4 Machine cleaning

Cleaning must be carried out after every day of use. Use hot water, a neutral detergent/detersive if necessary, and a soft brush or sponge. If another type of detergent is used carefully follow the manufacturer's instructions and observe the safety rules given in the information cards provided with the product or substance.

In order to reduce the environmental impact of pollutant substances, clean the equipment (externally and internally where necessary) with products that are more than 90% biodegradable.

IMPORTANT!
Do not clean the machine with jets of water.

CAUTION!
Do not use steel wool or similar material to clean s/steel surfaces. Do not use detergents containing chlorine.

CAUTION!
Contact with chemical substances (e.g. detergent, rinse aid, scale remover, etc.) without taking appropriate safety precautions (e.g. personal protection equipment) can involve exposure to chemical risk and possible damage to health. Therefore always refer to the safety cards and labels on the products used.

I4.1 Daily internal cleaning

At the end of a day's work carry out the instructions listed below.

- Completely empty the dishwasher tanks as indicated in par. I3.6 "Accessory functions".
- After draining the tanks, press the On/Off key ("A" - Table 2 "Control panel") to switch off the dishwasher.
- Disconnect the electrical service.
- Close the water supply cocks.
- Open the machine doors and remove the filters, overflows (Figure 27) and prewash, wash and rinse arms (Figure 28).
- Clean all parts carefully with hot water and neutral detergent/detersive,if necessary using a soft brush or a sponge.

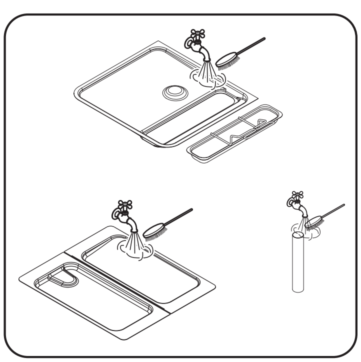


Figure 27 Remove and cleaning filters

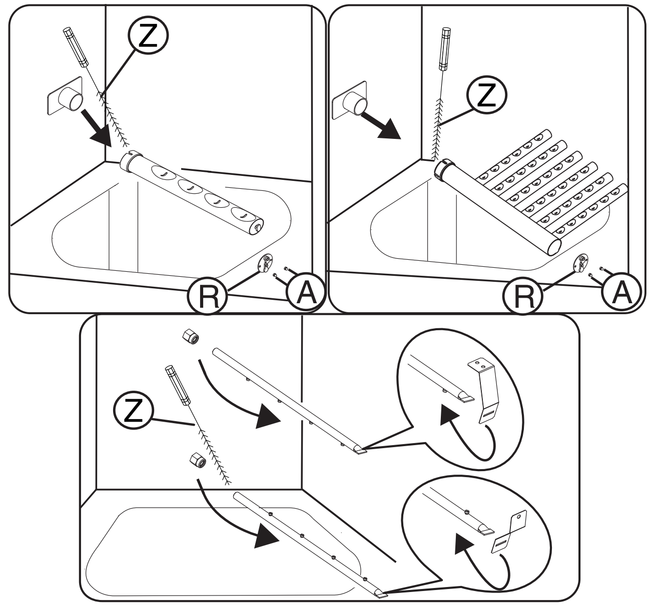


Figure 28 Remove and cleaning arms

- In particular, for prewash, wash and rinse arms use a warm soapy water and a soft brush "Z" (Figure 28).
- For prewash and wash arms remove the end plugs "R" unscrew nuts "A" and rinse them (Figure 28).
- Remove and clean the curtains in the machine.
- Clean inside the machine, making sure to remove any residuals of detergent or food.
- Clean the inside of doors with a damp cloth and detergent.
- At the end of cleaning operations, refit the previously removed parts.
- Close the machine door.

I4.2 Exterior cleaning

Clean the stainless-steel surfaces with lukewarm soapy water (do not use detergents containing abrasive substances, steel wool, brushes or scrapers in common steel) then rinse with a wet cloth and dry carefully.

I5 Long idle periods

Whenever the machine is not going to be used for a long period of time (e.g. one month), carefully carry out the following instructions.

- Completely empty the tanks as indicated in par. I3.6 "Accessory functions".
- After draining the tanks, press the On/Off key ("A" - Table 2 "Control panel") to switch off the dishwasher.
- Disconnect the electrical service.
- Close the water supply cocks.
- Clean the inside and outside of the machine as indicated in par. I4.1 "Daily internal cleaning" and I4.2 "Exterior cleaning".
- Spread a film of paraffin oil over the steel surfaces.

When using the machine again, follow the indications in par. I3 "Daily activation of machine".

I6 Maintenance

IMPORTANT

Before servicing, disconnect the electrical service and place a red tag at the disconnect switch to indicate work is being done on that circuit.

Inspection and maintenance intervals depend on the actual machine operating conditions (total wash hours) and ambient conditions (presence of dust, damp, etc.), therefore precise time intervals cannot be given. In any case, to minimize interruptions of the service, careful and periodical machine maintenance is advisable.

Therefore, it is advisable to:

- Descale the boiler, inside surfaces of the tank and the machine piping once or twice a year (call technical assistance).
- Every month descale the prewash, wash and rinse jets with vinegar or scale remover.
- Once or twice a year clean the finned coil of the CU (call technical assistance).

It is also advisable to stipulate a scheduled preventive maintenance contract with technical assistance.

I6.1 Preventive maintenance

The preventive maintenance call can be activated (call technical assistance).

On reaching the set number of working hours (e.g. 5000), a technical assistance call message appears on the display.

This message suggests calling a specialized technician, for a general check of the equipment.

I7 Machine disposal

At the end of the product's life cycle, make sure the equipment is not dispersed in the environment. The equipment must be disposed of in compliance with current regulations in the country of use.

All metal parts are in s/steel (AISI 304) and removable. Plastic parts are marked with the letters of the material.

The symbol [WEEE] on the product indicates that this product should **not** be treated as domestic waste, but must be correctly disposed of in order to prevent possible negative consequences for the environment and the human health.

Regarding the recycling of this product, please contact the sales agent or dealer of your product, your after-sales service or the appropriate waste disposal service.

I8 Troubleshooting

THE DISHWASHER DOES NOT WASH PROPERLY

1. Check the suction filter and carefully clean it if dirty.
2. Make sure the wash jets are not clogged by solid residuals.
3. Make sure the initial quantity of detergent and/or subsequent additions are correct.
4. Make sure the modules making up the machine respect the recommended values given in the technical data table.
5. Make sure the dishes are correctly placed in the racks.

GLASSES AND DISHES ARE NOT PROPERLY DRIED

1. Make sure there is rinse aid in the container and top-up if necessary.
2. Make sure the water temperature of the rinse module is between 176°F and 194°F (80°C - 90°C).
3. If present in the machine, check operation of the drying module (that hot air comes out).
4. Make sure the curtains are correctly positioned.
5. Make sure the dishes were not immersed in foamy detergent (e.g. hand wash detergent) before being put in the machine.

CONDENSATE ON GLASSES

1. Make sure there is rinse aid in the container and top-up if necessary.

STAINS ON GLASSES

1. Only use "non-foaming" products for professional dishwashers.

EXCESSIVE FOAM IN THE TANK

1. Make sure the washing module water temperature is not below the minimum recommended value given in the technical data table.
2. Make sure the tank has been cleaned with suitable detergents.
3. Empty the tank and carefully rinse before resuming work.
4. If a foaming detergent was used, empty and refill the tank with water until the foam has been removed.